

## ANALYSIS OF THE EVOLUTION OF JUNIOR A RESULTS FOR GIRLS IN ROMANIA AT SHORT TRACK COMPARED TO THE RESULTS OBTAINED BY TOP ATHLETES

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**Abstract:** *The present study wants to highlight the level of progress and development of short track speed skating in Romania. The study I propose is based on the results obtained by the short track skaters at the National Championships in Romania, monitored for six years between 2014 and 2022. The 1st-3rd places were taken into account, being compared with the world records of that period to highlight the differences between the top results and those achieved at national level. The study was done at the Junior A women age level, the 500m, 1000m and 1500m competitions being targeted. From the data presented it can be seen that for the 1st place in ranking, the best result in the 500m race is achieved in 2017 with a time of 47.32 sec, and the worst result is 53 sec in 2022. The 1000m competition is characterized by various evolutions at the level of sportsmen in Romania, the best result achieved at the level of 1st place ranking being 1:51.60 min in 2021 compared to the worst that was obtained in 2015 with a time of 2:06.020. In the 1500m competition, 2021 is the year with the best result (2:57.12 min), and the worst result obtained at national championships was 3:20.00 min achieved in 2022. In the context presented above we can see a big difference compared to the world record, the biggest difference being 1:01.30 min in 2022 and the smallest being 32.20 sec in 2014. The poor results obtained last year are obvious, the 500m and 1500m competitions being the weakest of those presented, confirming the statement that, with the lack of funding and optimal training conditions, the motivation of the athletes decreases, the prolongation of this situation leading to the abandonment of the sport. Although the year 2022 is not characterized by the worst result obtained in the 1000m race, it is noted that the trend is to increase the time obtained compared to 2016-2021.*

**Key Words:** *Short Track, Speed Skating, Junior A, Girls.*

## INTRODUCTION

The present study wants to highlight the level of progress and development of short track speed skating in Romania, knowing that there is a small number of artificial ice rinks, the training conditions of athletes being carried out in lower conditions compared to other states.

The short track, unlike long-track speed skating, can be considered more "tough", being practiced at the 1932 Winter Olympics in Lake Placid, New York, USA, with an increase in popularity since the 1960s and 1970s according to Britannica (2018).

Performance sport has lately experienced a progress that encompasses all its components, reaching results that some time ago were not considered possible. As for high-performance athletes, they have as a characteristic a certain vulnerability, especially in the period of growth, therefore specialists recommend that athletes be permanently monitored, medical assistance being a necessity.

Although there are also specialists who consider that "sport, practiced in excessive form, harms the health of children and adolescents, which is why it should be avoided" (Bühlmann, 2001, p. 9), it can be said that, in fact, the reality is a little different, with concrete evidence that highlights the fact that "sports activity practiced in childhood can reduce the risk of certain corneal pathologies and certain causes of mortality in adulthood" (Bühlmann, 2001, p. 9-10).

The appearance of results in high performance speed skating is also due to the existing motivation, which in addition to the other factors that influence performance has an important role in the evolution of the skater, Hagedorn (2000) considering high-performance sport as almost automated, being compared to a reflex, namely training-competition-championship.

Very important in detecting talent and reaching a level of very good results is also related to the three phases of the strategy aimed at sports talent, namely: "the phase of spotting (detecting) talent (how can we reach a sports talent?); the phase of promoting talent (how do we proceed with a sports talent?) and the phase of preservation of the

talent (how can we avoid the phenomena of sports abandonment - drop-out?" (Hagedorn, 2000, p.39).

It is known that at the level of speed skating, both on long track and at short track, the main factors (motor, psychic, somatic capacity) will be different depending on the test in the competition. For the short track we can say that it has an influence both on the locomotor apparatus, the respiratory system and on the nervous system, the sensory system, circulatory apparatus/ blood, renal and extrarenal excretion systems, according to the Romanian Skating Federation (1991, p. 88-90).

Another factor that influences performance in short track is also the technique, knowing that the simpler it is, the smaller the differences between athletes. Bompa (2002) highlights the fact that the complexity of a technique has an important role in the variations found in the execution of the technique.

If we are to talk about skating performance we must also remember the selection process that also has a well-determined role. Therefore, during the control tests, the coaches must take into account the testing of the children's training regarding: "the concordance of the morphological and functional development of the children with the particularities of the specific requirements for the practice of speed skating; the motor capacity of children in relation to the structure of skills and actions involved in the practice of speed skating; the concordance of the children's personality traits, according to the behavioral requirements specific to the practice of speed skating; the selection of children for practicing speed skating is carried out in two ways: a) following a preselection among children who know how to skate and b) following a pre-selection among children who do not know how to skate (which had as main criterion the somatic type)" (Romanian Skating Federation, 1991, p. 117).

In skating, as testing criteria, we can highlight after Dragan (1978) quoted by Bompa (2002) for short track – strenght, reaction time, large aerobic and anaerobic capacity, coordination and for long distances – high aerobic capacity and VO<sub>2</sub> max per kg. body.

In terms of the development of rhythm behavior, Menting, Huijgen, Konings, Hettinga & Elferink-Gemser (2020) believes that around the age of 15-16 the most important change occurs.

In the world of speed skating it is considered that „which characteristics determine the achieved mechanical power output and the power lost to frictional forces has been an important topic of research in scientific literature. The peculiar technique of speed skating makes it an interesting sport from scientific perspective” (Konings, Elferink-Gemser, Stoter, Van der Meer, Otten & Hettinga, 2015, p.3).

The discussions about sports performance are numerous, Bompa (2002) considering that the amount of physical, technical, tactical effort has an important role on the level of adaptation, referring in fact to the appearance of a higher performance.

Also, specialists consider that “in young, as in adult skaters, the pace set in the initial laps dictates the velocity changes in the rest of the race. This phenomenon is suggested to stem from the various tactical choices made by athletes, balancing between the advantages afforded by either drafting or pace control. Lastly, the effect of the competitive environment (e.g., the stage of competition) on the pacing behavior of young short-track speed skaters is less pronounced compared with adult skaters” (Menting, Huijgen, Konings, Hettinga, & Elferink-Gemser, 2020, p. 1107).

Regarding certain psychological traits of athletes it can be said that “the results of this investigation proved the hypothesis that short track athletes are characterized by specific psychological traits. Short track skaters obtain high scores on the temperamental scales i.e., persistence, harm avoidance and novelty seeking, character scales, i.e., cooperativeness and impulsivity scales, i.e., sensation seeking and positive urgency” (Gabrys & Wontorczyk, 2022, p. 9).

Also of particular importance is the fact that, “coaches are advised to monitor the pacing behavior development of athletes, make athletes aware of the tactical advantages of setting a slow or fast initial pace, and instruct them on how to pace themselves

throughout the different stages of competition, in order to optimize their pacing behavior and in turn their athletic performance” (Menting et al, 2020, p. 1107).

Studies show that the introduction of yoga adapted to speed skating in the training program of athletes can bring a plus to performance, so it is considered that “inserting these types of sessions in the annual training program opens a new and promising avenue in many regards: the prevention of injuries, the effect of developing new motor skills and their transfer, the effect of developing new postural skills and the effect on the strength of segments,, and the effect of the variation of heart rate during the postural intervention on different energy circuits. Furthermore, yoga is also recognized for its positive effects on psychological dispositions, which constitutes an important field of expertise in research concerning high performance sport” (Brunelle, Blais-Coutu, Gouadec, Eric & Fait, 2015, p.33-34).

From the studies carried out it can be seen that “maintaining a leading position in a 500 m competition, for example, consumes less energy than in a 1000 or 1500 m one (Di Prampero et al., 1976)”. (Sun, Guo, Liu & Tao, 2021, p. 6).

At the same time, research in the field highlights the fact that “the starting and finishing positions are closest in semi-finals for champions since short track speed skating contests are elimination events, which means that performance gaps between skaters shrink from preliminary to final”. (Sun, Guo, Liu & Tao, 2021, p. 6).

## **METHODS**

The study I propose is based on the results obtained by the short track skaters at the National Championships in Romania, results that were monitored for six years between 2014-2022 according to the Romanian Skating Federation ([frponline.ro](http://frponline.ro)). The 1st-3rd places were taken into account, these times being compared with the world records of that period to highlight the differences between the top results and those achieved at national level. The study was done at the Junior A women age level, and the targeted competitions were 500m, 1000m and 1500m. As main methods recall documentation method, graphical method and comparing method.

## RESULTS

The data obtained are presented in the tables below with the mention that at the level of world records, records marked with \* are not yet ratified according to the International Skating Union (isu.org).

Table 1. The results obtained in the 500m event

Place	2014	2015	2016	2017	2021	2022
1	52.670	50.420	52.080	47.320	49.820	53.000
2	54.570	51.070	52.800	1:05.450	55.130	55.000
3	-	51.940	1:02.820	1:08.230	1:00.160	1:03.000

Table 2. The record for the 500m event in the years studied

Nr. Crt.	2014	2015	2016	2017	2021	2022
1	43.704 *	43.704 *	43.596 *	43.550 *	43.212	43.212

From the data presented in tables 1-2 as well as in Figure 1 it can be seen that at the level of the 1st place in the ranking, the best result in the 500m test is achieved in 2017 with a time of 47.32 sec., and the worst result is 53 sec. achieved in 2022. By checking the results of the three places we can see that the worst result is the one obtained at the 3rd place in 2017 with a time of 1:08.23 min.

The differences from the world records are obvious, in 2014 the difference being about 9 sec. The differences from the world records of the first results were 6.7 sec. in 2015; 8.5 sec in 2016; 3.7 sec in 2017; 6.6 sec in the year 2021 and 9.8 sec in the year 2022.

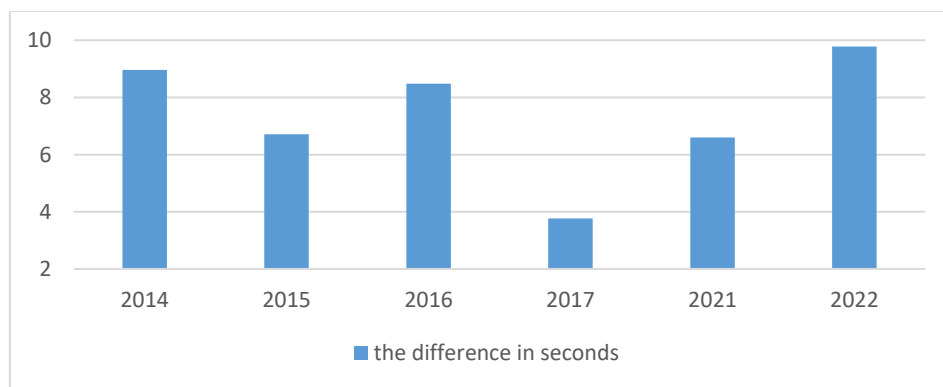


Figure 1. The difference in seconds compared to the 500m world record

The data presented in tables 3-4 and figure 2 highlight the results in the 1000m sample from our country, the differences being significant compared to the top results in the world.

Table 3. The results obtained in the 1000m event

Place	2014	2015	2016	2017	2021	2022
1	2:02.890	2:06.020	1:56.330	1:53.000	1:51.600	1:58.000
2	2:03.130	2:07.000	2:01.950	1:59.420	1:59.290	1:59.000
3	2:04.830	2:07.230	2:06.570	2:18.320	2:05.130	2:09.000

Table 4. The record for the 1000m event in the years studied

Nr. Crt.	2014	2015	2016	2017	2021	2022
1	1:30.166 *	1:30.166 *	1:30.166 *	1:28.745 *	1:27.685	1:27.685

The 1000m competition is characterized by various development levels of sports in Romania, the best result achieved for the 1st place being 1:51,600 min in 2021 compared to the worst that was obtained in 2015 with the time of 2:06.020. In terms of the first three results of each year, it is noted that the worst result is 2:18,320 min achieved in 2017.

Comparing the results obtained by the Romanian athletes at this competition with those achieved at international level as a world record we can see that the differences are quite large, the biggest difference being recorded in 2015 with a value of 35.85 sec, and the lowest was 23.92 sec in 2021. For the rest of the years investigated, differences of 32.7 sec are observed in 2014; 26.17 sec in 2016; 24.26 sec in 2017 and 30.32 sec in 2022.

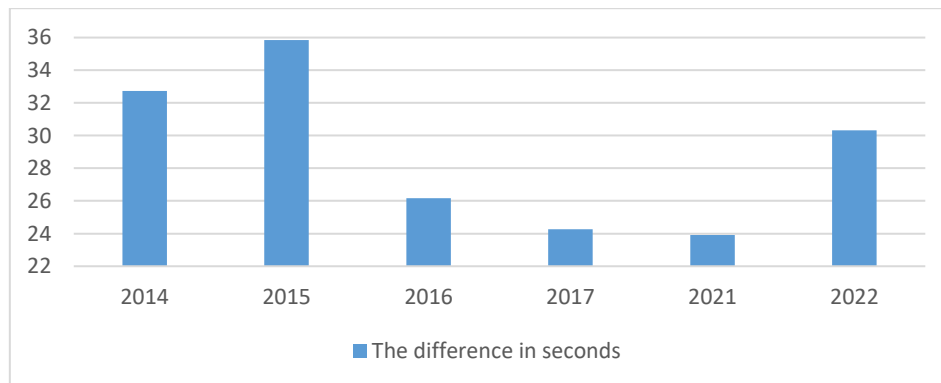


Figure 2. The difference in seconds compared to the 1000m world record

The third researched was the 1500m Junior A girls, the times obtained by them, as well as the difference between the best results and the world records of the years investigated are highlighted in tables 5-6 and Figure 3.

Table 5. The results obtained in the 1500m event

Place	2014	2015	2016	2017	2021	2022
1	2:58.070	3:07.260	2:59.340	2:59.080	2:57.120	3:20.000
2	3:05.230	3:07.980	3:02.070	3:01.760	3:15.000	3:29.000

3	3:22.100	3:15.820	3:26.040	3:27.230	3:19.420	4:10.000
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Table 6. The record for the 1500m event in the years studied

Nr. crt	2014	2015	2016	2017	2021	2022
1	2:18.861 *	2:18.861 *	2:18.861 *	2:18.695	2:18.695	2:18.695

From the data presented above we can see the evolution or involution of the results over the years investigated, the best result being achieved in 2021 with a time of 2:57.12 min, and the worst result regarding the time at the level of national championship was 3:20.00 min achieved in 2022. In the context presented above we can see a big difference compared to the world record, the biggest difference being 1:01.30 min in 2022 and the smallest being 32.20 sec in 2014. For the rest of the years, the differences were between the values of 38.42 sec and 43.39 sec.

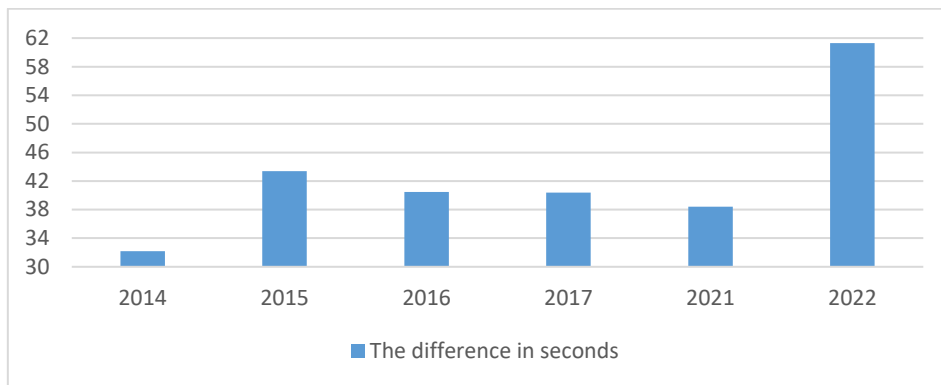


Figure 3. The difference in seconds compared to the 1500m world record

## DISCUSSION

The subject of long track or short track speed skating in Romania is a trending subject being viewed through the prism of the current situation of the Romanian Skating Federation, a situation that translates into the lack of funding received by both from international forums and from the relevant ministry in Romania.

Specialists in the field consider that “between 15 and 20 yr of age, short-track speed skaters become faster by developing the ability to reserve energy in the starting section of the race in order to reach a higher absolute velocity in the second half of the race” (Menting et al, 2020, p. 1107), this confirming the above, namely that the age to which we refer being an important one for future skaters.



If we observe the 500m competition, the worst result with the biggest difference from the world record is obtained in 2022, which confirms the lack of funding in recent years, since 2017 (the year with the best result) the results obtained being in a constant regression.

The results from the 1000m competition show us that since 2015 the trend has been to improve the results with the mention that in 2022, as in the 500m competition, the results have decreased in value, although still higher than in 2015. In the 1500m competition I can confirm the trend of the two aforementioned above, the year 2022 being the worst year, the difference between the best result obtained at the National Championships being about 23 sec., and compared to the world record of 1:01.30 min. Continuing on the subject of various studies in the field of performance sports that treat the three competitions in terms of top results we find that "obvious accelerations are obtained in final rounds whatever 500, 1,000, and 1,500 m races. Another interesting behavior is that pacing patterns for champions drastically vary in 1,500 m race. The potential explanation for this phenomenon lies in the fact that skaters undergo more laps compared to the event of 500 and 1,000 m, which yields more complicated strategical overtakes. At the meantime, the total players per round outnumber than those in 500 and 1,000 m races which result in the fluctuation of positions per lap for champions in each round as being an all-time leader undertakes more energy consumption, and, to some extent, at a higher risk of being overtaken". (Sun, Guo, Liu & Tao, 2021, p. 6)

## CONCLUSIONS

From the above we can see that, although the age to which I refer is an important age in skating, the somewhat poor results can be put on a multitude of factors among which they also highlight the lack of material base, funding or high-performance equipment. No matter how much a skater is trained on land, the lack of covered ice rinks to provide athletes with ice for at least 11 months a year is a major disadvantage compared to countries that have a very good material base and receive adequate funding to provide high-performance equipment, medication, training conditions, etc.

In Romania, the lack of interest of sponsors to invest in performance sports (individually) in general, and in skating in particular, is known, the increase in funding having as a purpose the improvement of performances also at the level of speed skating in our country.

The poor results obtained in the last year being obvious, in the 500m and 1500m competitions being the weakest of those presented, confirming the statement that, with the lack of funding and optimal training conditions, the motivation of the athletes decreases, the prolongation of this situation leading to the abandonment of the sport. Although the year 2022 is not characterized by the worst result obtained in the 1000m competition, it is noted that the trend is to increase the time obtained compared to 2016-2021.

As long as you do not have a large number of hours of training on ice, the rhythm patterns (based on the results obtained) that should exist in the athletes in Romania do not come close to those that the great world champions have, the specialists considering that in the case of short track skating (short track) the age of 15-16 years is the most important because here you can see the greatest progress in terms of rhythm of race.

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