

Original Article

Study on the evolution of results in the 400m male sample in the summer competition season

MIHĂILESCU LIVIU

University of Pitesti, Faculty of Sciences, Physical Education and Informatics

Published online: November 24, 2017

(Accepted for publication November 15, 2017)

DOI:10.7752/jpes.2017.s5248

Abstract

Through the spectacle offered to viewers and viewers, through the variety of evidence and the complexity of the effort, and by promoting fair play, and especially models (idols) for young people, athletics is and will certainly remain one of the most spectacular sports, not in vain being called the "king" of Olympic sports. In research, we started from the hypothesis that the performance value in the 400m male test is steadily increasing from the start of the competitive season to the end of the season, and the best performances are recorded in the National Championship finals.

In order to carry out our research, we used the following research methods: the study of the specialized literature, the statistical mathematical method, the data comparison method, the graphical and tabular method.

We compared their results by computing the arithmetic mean to highlight the value of the group at each competition and the standard deviation to see the mean value of the dispersion. Studying arithmetic mean values we see that it has the lowest value at the Final stage, which is a good thing, but it does not have a descending trend, as it was normal, from the first stage to the last; maybe the two stages of the National Championship, the second and the third have been trained on a higher load fund in training, which has resulted in weaker results; however, the second stage was a selection criterion for participating in the Team Europe Cup, thus, an additional motivation to achieve significant results; however, the arithmetic mean of the results has the lowest value;

The hypothesis formulated is not fully confirmed. The best performances in the 400m test are made in the goal competition, the Finals of the National Seniors Championship, but their trajectory is not a descending one during a competitive year.

Key Words: running, competition, event.

Introduction

Through the spectacle offered to viewers and viewers, through the variety of evidence and the complexity of the effort, and by promoting fair play, and especially models (idols) for young people, athletics is and will certainly remain one of the most spectacular sports, not in vain being called the "king" of Olympic sports.

According to the literature, the evolution of athletics throughout history was due to the needs of people to provide food, and then for religious reasons, the evolution materialized in the competitions of the 12 centuries of ancient Olympic Games. Subsequently, in the 110 years of modern Olympic competitions (1896-2006), numerous recordings (national, European, world, Olympic) were corrected with each contest in different athletic samples. The outstanding performances recorded today in athletics have put serious questions in the last few years on the limitations of the human body. The 400 meter test, in terms of effort, is in the anaerobic effort category, lactose-deficient, with oxygen deficiency, the level of oxygen absorption being below the level required to meet the ATP level. The difficulty of this test lies in this physiological and biochemical aspect of metabolism, which requires good anaerobic capacity with a higher level of oxygen debt limit, as well as increased efficiency and rapid adaptability of the cardiorespiratory system to the very high requirements of this type of effort.

The research hypothesis

In research, we started from the hypothesis that the performance value in the 400m male test is steadily increasing from the start of the competitive season to the end of the season, and the best performances are recorded in the National Championship finals.

Material and methods

In order to carry out our research, we used the following research methods: the study of the specialized literature, the statistical mathematical method, the data comparison method, the graphical and tabular method.

Results

In research I left from the analysis of the performances obtained by the best Romanian athletes in the 400m flat test during a competitive outdoor season that summed up three stages of the National and Final Championships. Our records recorded a number of 15 athletes who ranked in the top 8 at the four competitions. We compared their results by computing the arithmetic mean to highlight the value of the group at each competition and the standard deviation to see the mean value of the dispersion.

From the start, I started from the assumption that the value of the results is better from one competition to another, considering that the athlete grows in performance from the competition to the competition, and that the best results will be obtained at the final stage of the National Seniors Championship.

Table 1. The results at N.C. Seniors, stages and finals

| | Name and surname | Stage 1 | Stage 2 | Stage 3 | Final |
|----|-------------------------|----------------|----------------|----------------|--------------|
| 1 | Radu Cristian | 47,47 | 47,85 | 47,99 | 47,87 |
| 2 | Drăgan Adrian | 48,21 | 48,37 | 48,1 | 47,81 |
| 3 | Gheorghescu Alberto | 48,44 | 48,98 | 48,3 | 48,88 |
| 4 | Ganciu Iulian | 48,6 | | | |
| 5 | Daroczi Ciprian | 48,64 | | | |
| 6 | Ursachi Sebastian | 48,81 | | 48,84 | 48,45 |
| 7 | Nichituş Pavel | 48,89 | 48,66 | 48,72 | 48,62 |
| 8 | Sroilescu George | 48,93 | 49,7 | | |
| 9 | Grunwald Iosif | | 49,3 | | |
| 10 | Burcea Alexandru | | 49,66 | 49,35 | |
| 11 | Dulcescu Vlad | | 49,72 | | 48,69 |
| 12 | Gaspar Florin | | | 49,9 | |
| 13 | Trofin Andrei | | | 49,5 | |
| 14 | Moraru Zeno | | | | 48,05 |
| 15 | Frumuz Florin | | | | 49,03 |

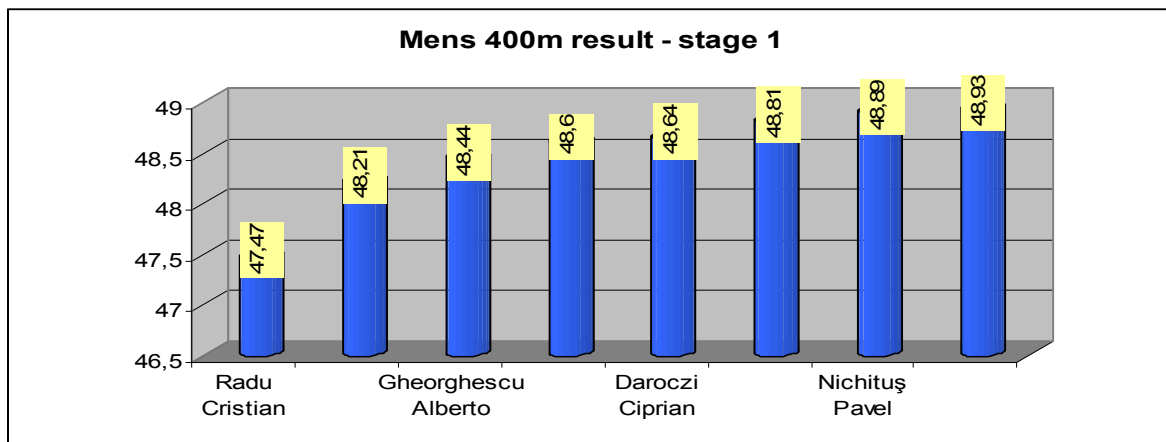


Fig 1 Results in the men's 400m race - Stage 1

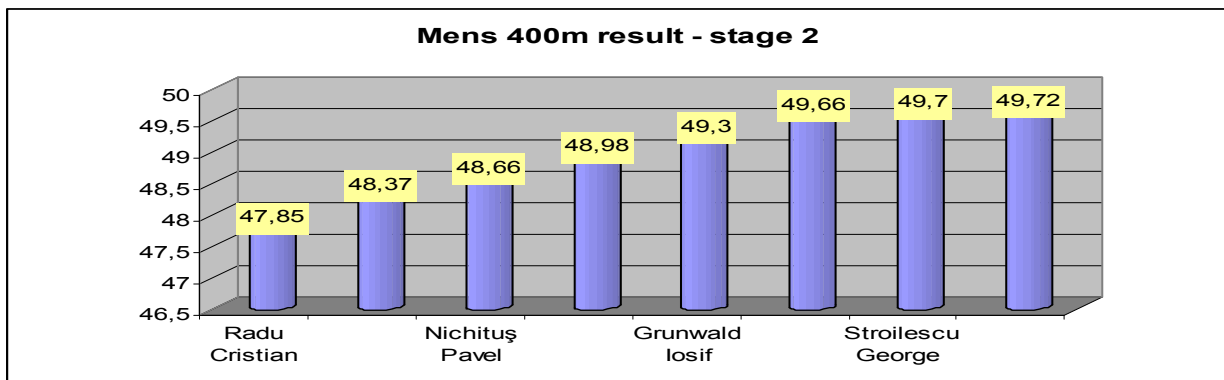


Fig 2 Results in the men's 400m race - Stage 2

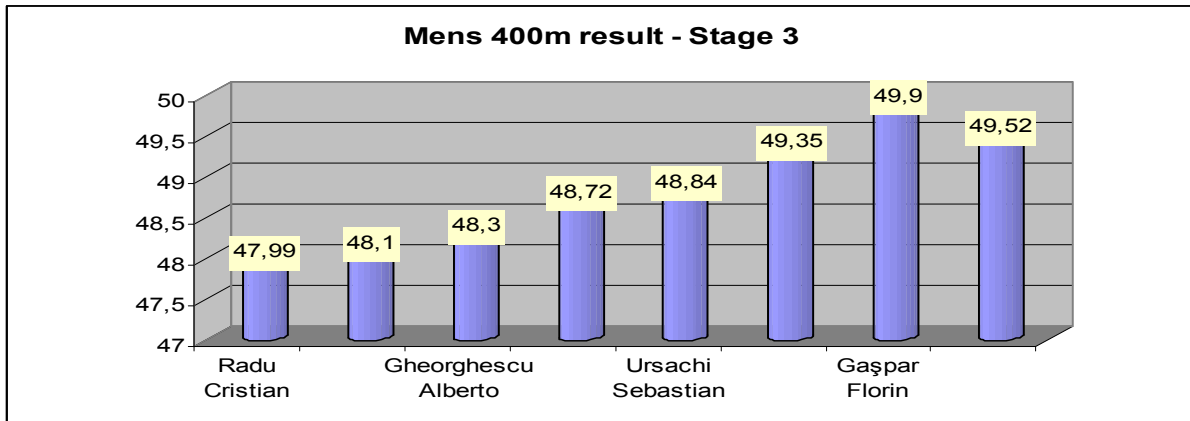


Fig 3 Results in the men's 400m race - Stage 3

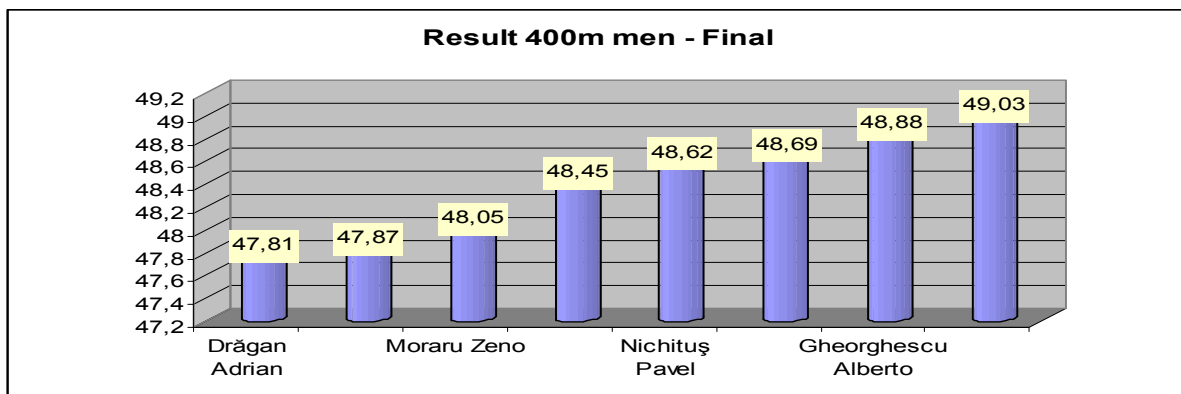


Fig 4 Results in the men's 400m race - Final

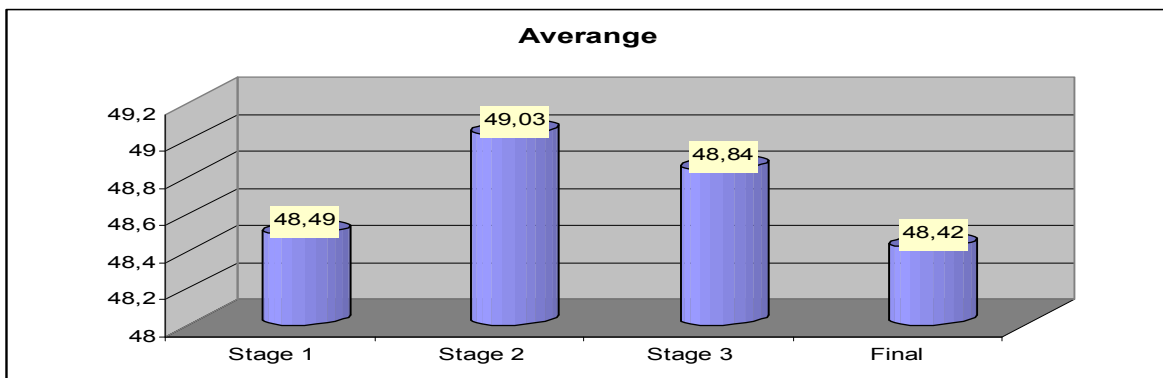


Fig 5 Average result evolution

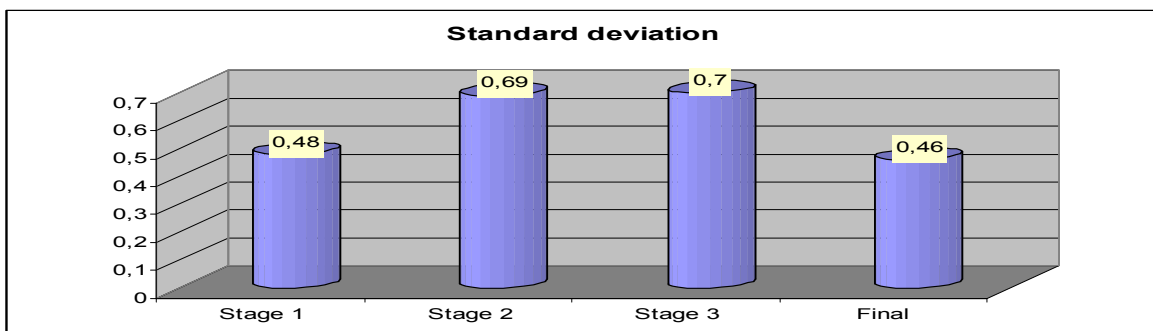


Fig 6 The evolution of standard deviation

Discussions

Studying the results we have achieved the following:

At the four competitions there were 15 athletes who ranked in the top 8, which we consider to be a positive fact, the sample of 400m being a test that enjoys a good participation, and therefore a good base study and selection for international competitions.

However, only 4 athletes participated in all competitions: Radu Cristian, Drăgan Adrian, Nichituș Pavel and Gheorghescu Alberto

Surprisingly, the best performance in this test was scored at the first stage by Athlete Radu Cristian with the time of 47.47 seconds and not the final stage, as would be normal, considering that it should have been the top of the sporty shape; with that performance he would have won the title of national champion;

Of the four athletes, only two were able to make the best performances in the most important event, the Finals of the National Seniors Championship, Drăgan Adrian and Nichituș Pavel. This demonstrates that training programs, training plans and sports-related planning have been well done for them

Studying arithmetic mean values we see that it has the lowest value at the Final stage, which is a good thing, but it does not have a descending trend, as it was normal, from the first stage to the last; maybe the two stages of the National Championship, the second and the third have been trained on a higher load fund in training, which has resulted in weaker results; however, the second stage was a selection criterion for participating in the Team Europe Cup, thus, an additional motivation to achieve significant results; however, the arithmetic mean of the results has the lowest value;

Also, the standard deviation has the lowest value in the National Championship Finals, which is good, but, as with the arithmetic mean, it is not decreasing from the first competition to the last.

Conclusions

The hypothesis formulated is not fully confirmed. The best performances in the 400m test are made in the goal competition, the Finals of the National Seniors Championship, but their trajectory is not a descending one during a competitive year.

Surprisingly, the best performance in this test was scored at the first stage by Athlete Radu Cristian with the time of 47.47 seconds and not the final stage, as would be normal, considering that it should have been the top of the sporty shape; with that performance he would have won the title of national champion;

Of the four athletes, only two were able to achieve the best performances in the most important event, the Finals of the National Seniors Championship, Drăgan Adrian and Nichituș Pavel. This demonstrates that training programs, training plans and sports-related planning have been well done for them;

References

- Alexe N. (1993). *Antrenamentul sportiv modern*, Editura Editis, București
- Demeter A. (1981). *Bazele fiziologice și biochimice ale calităților fizice*, Editura Sport Turism, București
- Mihăilescu, L.E. (2013). “*Calitate și eficiență în antrenamentul athletic*”, editura Universității din Pitești, Pitești
- Mihăilescu, L.E. (2013). “*Strategii instructionale utilizate în antrenamentul athletic*”, editura Universității din Pitești, Pitești
- Manno, R. (1996). *Bazele teoretice ale antrenamentului sportiv*, MTS-CCPS, București
- Tatu, T., Alexandrescu, D.C. (1986). *Norme și cerințe metodice privind performanța sportivilor de perfecționare și înaltă perfecționare*, IEFS București