

STUDY OF THE YOUTH AND JUNIOR WORLD CHAMPIONSHIPS FINALIST ADULT PERFORMANCE DEPENDING ON THE PLACES

KOVÁCS BÁLINT, GYIMES ZSOLT, BENCZENLEITNER OTTÓ*¹

ABSTRACT. The aim of the study analyses the subsequent-adulthood performance of world champion finalist male middle-distance runners from 1998 to 2012 with regards to respective competitor's ages. The study focuses on: the finalists of the IAAF World Youth and Junior Championships (N=240), the racer's time results at the age group world championship, and their personal bests (pb) in contrast to the location of their finals. Basic statistical analysis (mean, standard deviation - SD) and T-tests for independent samples were used to compare the average values of the group-age time results with their personal best time results. Significant progressions ($p \leq 0,05$) were found in the time results for all finishing-places in the cases of the youth and junior males, save for one exception. From the Youth World Championship finalist male middle-distance runners: only 25.9% were qualified to race at the Olympics or the World Championships. On the other hand, the junior age shows better performance in this case (50%). Investigation of the time results revealed significant progression for almost all of the prior-mentioned cases. For all examined placed runners of the Great Championships, remarkable differences were found between the youth and junior age group.

Keywords: *middle-distance runners, junior championship, youth championship*

Introductions

The training of the grouped aged athletes is always an important topic in sports. The motor skills are the most determining aspects of the success in athletics. Experts always pay emphasized attention to preparations and racings of the young athletes. International studies have been published with different

¹ Hungarian University of Physical Education, Budapest, Hungary

* Corresponding Author: botto66@freemail.hu

conclusions. According to Hollings, attendance of the IAAF World Junior Championships is a prerequisite for success as a senior athlete at the global level. In contrast, studies by ZELICHENOK (2005) analyzed the results of the World Junior Championships to show that 60-70% of the junior medalists and finalists did not go on to achieve any serious success at the senior level. Grund and Ritzdorf (2006), who studied the performance development of the finalists at the 1999 World Youth Championships, found that 90% of finalists ($n=266$) at these championships continued to improve in the subsequent years with 88% of the group composing the world top 100 ranked performances of the year in their respective events. Twenty-one percent of the group went on to qualify for the World Championships or the Olympic Games between 2000 and 2004. Holling and Hume investigated the developments of the junior age athletes of New-Zeland and Australia. They found a higher probability of medalists and finalists in the IAAF World Junior Championships to become elite seniors rather than junior non-finalist competitors coming into the sport or those who had not competed at the IAAF World Junior Championships. They diagnosed that the attrition rate is four times greater amongst junior non-finalist competitors and three times greater amongst junior finalist than junior medalists. This study focuses on the performance of middle distance runners who participated in the finals at the youth or junior world championships.

Subjects and methods

The study was focused on the male youth and junior world championship finalists between 1998 and 2012 ($N=240$). The runners competition and personal best time results were compared. The time results were converted into spiriev score points for easier calculation. The data was collected from the IAAF web-based database alongside other track and filed internet databases (e.g. www.all-athletic.com). Basic statistical analysis (mean, standard deviation-SD) and T-test were used for manifestation of the difference between the runner's competitive and personal-best time results. The achieved rank at the youth or junior championship level for the runner's personal-bests were compared with linear curve fitting.

Results

The observed "youth" aged male runners achieve their pb time result at age $18,86 \pm 2,97$. In the case of the juniors: $21,02 \pm 3,39$. From the youth world championship finalist male middle-distance runners, only 25,9% were qualified to race at the Olympics or the World Championships. On the other hand, the junior age shows better performance in this case (50%), figure 1.

Youth	Male
Olympic and WC	15,17%
only WC	2,67%
only Olympic	7,14%
not participate Olympics or WC	74,1%
Juniors	Male
Olympic and WC	35,16%
only WC	3,91%
only Olympic	10,94%
not participate Olympics or WC	50,00%

Figure 1. The Olympics or the World Championships performance

The time results were converted into spiriev score points for easier calculation. The personal best time result are significantly ($P \leq 0,05$) greater than the aged grouped competition time result almost in all cases. The results was calculated with T-test.

We found a strong correlation between the achieved rank at the youth or junior championship and the pb time results in either respective group. If a competitor has a better rank at the youth or junior championship then they will most likely hold a better pb in his adult carrier. We have denoted these coefficient's R^2 values as $R=0,82$, in the case of youth, and coincidentally the same for juniors $R=0,82$ (2. 3. figure)

The youth 800m runners mean improve were $11,36 \pm 8,07\%$ and the juniors $8,63 \pm 7,45\%$. Slightly but non-significantly ($P \leq 0,06$) is greater with the youth's development than the juniors in this aspect. The 1500m youth runner's mean improvement was $7,61 \pm 7,31\%$ and the junior's - $8,93 \pm 5,59\%$. This reveals no significant difference in this case between the age groups ($P \leq 0,26$).

6,25% (3 youth, 12 junior) of the studied runners claimed either an Olympics or a World Champion medal. 10,41% (6 youth 19 junior) of the examined runners participated in the Olympics or/and World Championships finals. 10,83% (10 youth 16 junior) of the observed racers participated in these championship's semi-finals and 11,66% (11 youth 17 junior) competed in the heats Almost two-thirds of the samples (60,83%; (82 youth 64 junior) failed to qualify for the Olympics or the World Championship. Between 1999 and 2012, 32 to 240 (10 youth 22 junior) would run times classified in worldwide Top Ten records for these years.

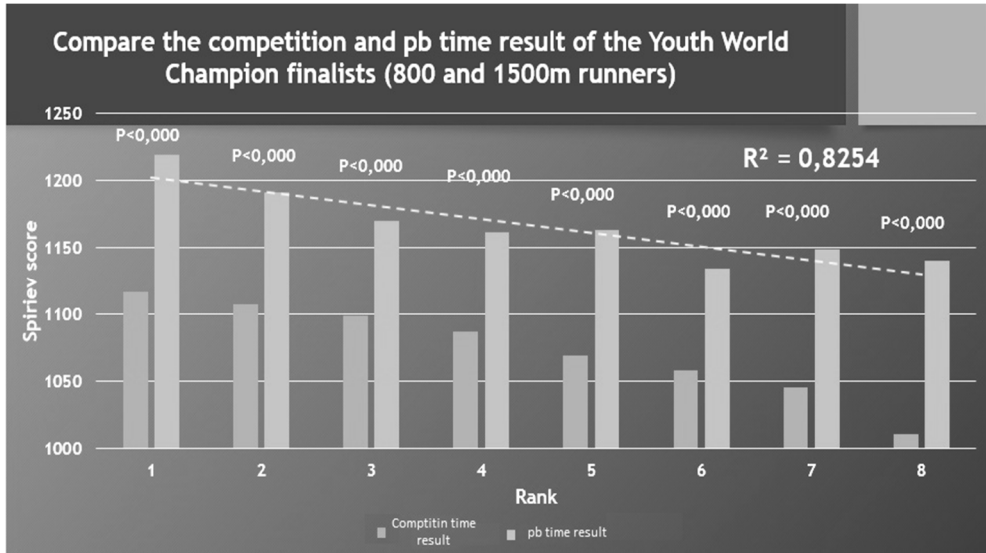


Figure 2. Compare the competition and personal best time result

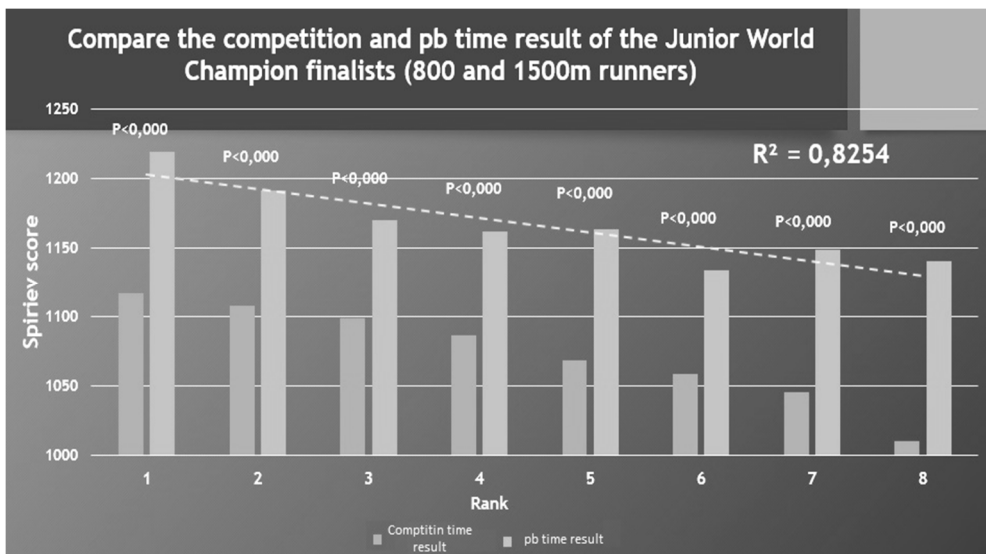


Figure 3. Compare the competition and personal best time result

Conclusion

The investigation of these two groups shows that the top junior athlete's adult performance in the great championships are more outstanding than the youth runners. The ratio of the junior athletes who participated in the great championships is two times greater than the youths. The youth athletes are projected to reach better personal best performances in their career - in contrast to those whom start as juniors. We diagnosed that the attrition rate is three times greater amongst youth competitors than amongst junior finalist. Those youth runners who carry on their running carrier consistently fail to match the peak-performance of their junior counterparts. This might be caused by the early specialization, overtraining, or (less than likely) just the personal development rate.

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