


# The Role of the European U23 Championships in the Development of Elite Athletes

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29:3; 41-56, 2014

by Brian Hanley

## ABSTRACT

*The European U23 Championships are an important competition showcasing young athletic talent. The expansion of competition in this age group provides a clear and contemporary rationale for studying these championships. Since its inception in 1997, this biennial competition has been used as a major milestone in the athlete's progress to world-class competition. In this study, athletes competing from 1999 to 2013 were observed. Their Global Wait (time taken between U23s and global championships) and Final Wait (transition time between U23s and reaching a final at global championships) along with successes were the criteria used for assessment. Interesting trends materialised regarding what events athletes continued to compete in or transitioned from (e.g. comparing throwers with combined events), and the time it took before competing at a global final (e.g. 800m women waited the longest). The measured success rate (finals and medal positions) of the U23 athletes within this study attests to the importance of these championships to athlete development.*

## AUTHOR

*Brian Hanley, PhD, is a Senior Lecturer in Sport & Exercise Biomechanics in the Carnegie Faculty of Sport and Education at Leeds Beckett University in Great Britain.*

## Introduction

**T**he European Athletics U23 Championships is an important development opportunity for high-level athletes and their coaches. The biennial competition is held in odd-numbered years for European Athletics Member Federations. There are twenty individual events held (there is no marathon or 50km race walk), and two relays.

To be eligible, an athlete must be at least 20 years of age and no more than 22 on December 31<sup>st</sup> of the year of competition<sup>4</sup> (and therefore junior athletes are not permitted to compete). One noteworthy effect of this rule is that some athletes get the opportunity to enter successive editions of the Championships. Although athletes must normally achieve entry standards to compete, each federation may enter one athlete in each individual event even if they have not achieved the qualifying standard<sup>4</sup>.

The focus of this study is on the role the U23 Championships plays in the development of individual athletes, and hence the benefit to the wider athletics community. Analysis of

such a potentially useful development opportunity is timely; after the 2012 Olympic Games, renowned British athletics coach Frank Dick identified some issues for European athletes and coaches, and provided recommendations for improved future performances<sup>1</sup>. For instance, he advised that athletes should take more opportunities to compete in tournament-style races, and that coaches should review their athlete development pathways. Some of those recommendations have a clear link with the development of young European athletes and might be addressed through the format and high-level nature of the European U23 Championships.

Although there has been an U23 Championships (in its current format) in Europe since 1997, it is only more recently that similar championships have been held in the Americas (but still not at all in other Areas), and thus it is the best source to study the value of this age-group competition in preparing future world-class athletes. European Athletics has also led the way with other U23 competitions, such as those held as part of the annual European Cross Country Championships and the European Cup Winter Throwing event. The expansion of competition in this age group means that there is a clear and contemporary rationale for studying the U23 Championships with regard to their role in developing elite athletes.

Prospective and retrospective studies of the progression rates of youth and junior athletes to senior competition are well established<sup>5-8</sup>. The same has not been done for the older age group of U23 athletes, despite its particular significance to European athletics. Dick suggested that development in the youth and junior years is an important foundation for senior-level success<sup>1</sup>; however, the European U23 Championships are also seen as an important development event<sup>2</sup>, with many athletes using them as a major milestone in their progress to world-class competition, and indeed they have been described as “very much a breeding ground for success”<sup>3</sup>. Nonetheless, the value and impact of the Championships has not been fully evaluated, and therefore a far-reaching and comprehensive study of its benefits to elite athlete de-

velopment will be highly useful to the athletics community in Europe.

A study of the success of the European U23 Championships can show the strong relevance of this competition to the development of athletics, from the point of view of both athletes and coaches. The aim of this study was to evaluate the role of the European Athletics U23 Championships in the development of elite athletes. The objectives involved in achieving this aim were to measure the success rate of athletes progressing from U23 to global level competition (and to finals and medal positions), to differentiate between success rates in different events, and to assess the various advantages of the U23 competition to European athletics.

## Methods

The results for each of the individual events (i.e. not including relays) held at the eight editions of the European Athletics U23 Championships from 1999 to 2013 were obtained via the European Athletics website ([www.european-athletics.org](http://www.european-athletics.org)) and using the Internet Archive. The number of competitors at each edition of the U23 Championships is shown in Table 1 (these include athletes who competed in more than one event and in more than one edition).

The results of the eight World Championships and four Olympic Games from 1999 to 2013 were obtained from the IAAF website ([www.iaaf.org](http://www.iaaf.org)). These results were meticulously scrutinised for performances by those athletes already identified from the European Athletics results as having competed at U23 level. Details recorded for athletes included highest stage reached (e.g. heats, finals), medals won, and whether they had competed in more than one event or on more than one occasion. ‘Global Wait’ was defined as the time taken between competing at the U23 Championships and a global championship, while ‘Final Wait’ was defined as the transition time between competing at the U23 Championships and reaching the final of a global championship. In cases where athletes competed at two U23 Championship editions, both transition times were calculated

Table 1: Details of each analysed competition

Venue	Year	No. of men	No. of women	Total no. of competitors
Gothenburg (SWE)	1999	413	306	<b>719</b>
Amsterdam (NED)	2001	384	343	<b>727</b>
Bydgoszcz (POL)	2003	420	353	<b>773</b>
Erfurt (GER)	2005	412	319	<b>731</b>
Debrecen (HUN)	2007	419	412	<b>831</b>
Kaunas (LTU)	2009	449	427	<b>876</b>
Ostrava (CZE)	2011	464	416	<b>880</b>
Tampere (FIN)	2013	488	418	<b>906</b>
<b>Total</b>		<b>3449</b>	<b>2994</b>	<b>6443</b>

using the year of the second appearance. The number of occasions a U23 athlete reached a global competition or its final was also recorded.

In all instances, the events the athletes competed in at U23 level were the focus of this study (rather than other events they might have taken part in at global level). So, for example, medals won in competitions not held as part of the U23 Championships (i.e. marathon, 50km race walk) are included with the data on the athletes' U23 events (e.g. 10,000m, 20km race walk). Instances where athletes have been counted twice (e.g. because they took part in more than one event) are noted, but in some cases (e.g. Table 2) they have been only counted once. Special care was taken in cases where women changed their surnames, where athletes had transferred national allegiance, and where the status of federations had changed (e.g. Serbia/Montenegro). Athletes were excluded from the study if they were recorded as Did Not Start (DNS) or were disqualified for doping offences (athletes were still included if they were disqualified for technical infringements such as in race walking).

## Results

Table 2 shows the number of individual athletes (i.e. avoiding duplicates) who competed for each European Athletics Member Federation (all 50 federations have participated in at

least one edition). The U23 number refers to the total number of individual athletes who have competed at the U23 Championships per nation, while the Global number refers to those who then also competed at global level (also expressed as a percentage of the U23 number).

Figure 1 shows the percentage of athletes (male and female) from each U23 edition who went on to compete at a global competition. As expected, the percentage qualifying decreases with time as athletes in later editions have fewer chances to qualify. However, in many instances athletes competed at a global competition before taking part in the U23 Championships (for the purposes of calculating global and Final Wait times these athletes were allocated minus figures, while those who competed in the U23 and global championships in the same year were allocated a figure of zero years).

The events where male athletes were most likely to compete at U23 level having already competed at global level were the 200m (10 athletes) and the 800m (also 10 athletes). By contrast, long distance athletes were less likely to make this early entry into global competition, with only one athlete competing in a global 10,000m race before their U23 race, and similarly only two competing in the 5000m. Amongst the women, the most popular com-

Table 2: Athletes who competed at U23 and global level for each European Athletes Member Federation

	Men			Women			Total		
	U23	Global	%	U23	Global	%	U23	Global	%
Albania	3	1	33	2	0	0	5	1	20
Andorra	2	0	0	1	0	0	3	0	0
Armenia	6	2	33	1	0	0	7	2	29
Austria	23	5	22	17	5	29	40	10	25
Azerbaijan	8	1	13	4	0	0	12	1	8
Belarus	78	29	37	91	28	31	169	57	34
Belgium	70	18	26	34	9	26	104	27	26
Bosnia-Herzegovina	8	2	25	0	0	-	8	2	25
Bulgaria	30	9	30	22	5	23	52	14	27
Croatia	28	7	25	24	9	38	52	16	31
Cyprus	33	2	6	15	3	20	48	5	10
Czech Republic	91	24	26	67	25	37	158	49	31
Denmark	18	7	39	14	2	14	32	9	28
Estonia	47	11	23	30	8	27	77	19	25
Finland	109	25	23	98	16	16	207	41	20
France	239	59	25	203	33	16	442	92	21
Georgia	6	2	33	3	1	33	9	3	33
Germany	235	60	26	190	67	35	425	127	30
Gibraltar	1	0	0	0	0	-	1	0	0
Great Britain	173	48	28	135	39	29	308	87	28
Greece	84	19	23	54	23	43	138	42	30
Hungary	88	21	24	71	16	23	159	37	23
Iceland	7	3	43	9	3	33	16	6	38
Ireland	52	17	33	35	9	26	87	26	30
Israel	29	4	14	14	2	14	43	6	14
Italy	158	35	22	132	24	18	290	59	20
Latvia	45	14	31	35	17	49	80	31	39
Liechtenstein	0	0	-	1	0	0	1	0	0
Lithuania	55	8	15	53	20	38	108	28	26
Luxembourg	7	4	57	4	0	0	11	4	36
FYR Macedonia	4	3	75	3	3	100	7	6	86
Malta	6	2	33	3	2	67	9	4	44
Moldova	11	5	45	10	4	40	21	9	43
Monaco	1	1	100	0	0	-	1	1	100
Montenegro	3	1	33	0	0	-	3	1	33
Netherlands	63	15	24	59	10	17	122	25	20
Norway	43	11	26	50	16	32	93	27	29
Poland	214	58	27	171	37	22	385	95	25
Portugal	55	13	24	46	16	35	101	29	29
Romania	58	9	16	98	23	23	156	32	21
Russia	161	65	40	199	69	35	360	134	37
San Marino	4	1	25	2	1	50	6	2	33
Serbia	22	5	23	21	8	38	43	13	30
Slovakia	33	11	33	18	8	44	51	19	37
Slovenia	28	10	36	30	11	37	58	21	36
Spain	193	39	20	103	21	20	296	60	20
Sweden	87	19	22	88	18	20	175	37	21
Switzerland	35	9	26	41	10	24	76	19	25
Turkey	39	7	18	42	16	38	81	23	28
Ukraine	107	38	36	105	47	45	212	85	40
<b>Total</b>	<b>2,900</b>	<b>759</b>	<b>26</b>	<b>2,448</b>	<b>684</b>	<b>28</b>	<b>5,348</b>	<b>1,443</b>	<b>27</b>

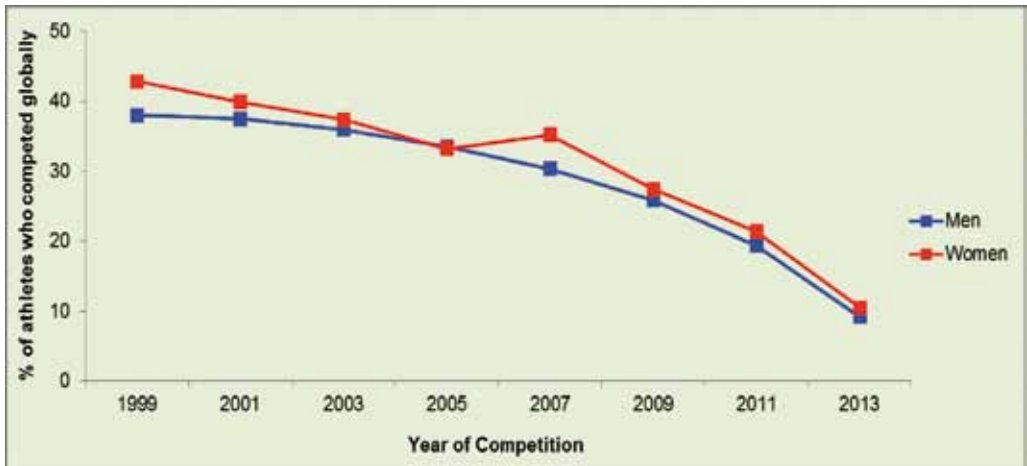


Figure 1: Percentage of athletes from each U23 Competition to compete at global level

petitions for athletes to enter at U23 level having already competed at global level were the relatively new events (for women) of pole vault (10 athletes) and hammer throw (13 athletes). Like the men, only one female 10,000m athlete followed this pathway, although there were four 5000m athletes who did likewise.



Carolina Klüft (SWE) took part in the U23 long jump in 2005, two years after becoming World Champion in the heptathlon, and one year after becoming Olympic Champion (Photo: [www.iaaf.org](http://www.iaaf.org)).

### Sprints

The number of athletes competing in each of the sprint events is shown in Table 3. The total number of athletes per event excludes those who competed in the same event in two different championships. Amongst the men, there were nine who competed in the 100m on two occasions, with 14 in the 200m and 17 in the 400m. Similarly, there were 26 women who competed in the 100m twice, 12 in the 200m and 18 in the 400m. As mentioned in the Methods, the 'Global Wait' refers to the average time between competing at the European U23 Championships and a global event. Seventeen of the men who competed globally in the sprint events did so before taking part in the U23 Championships, while amongst the women, 19 did likewise.

Table 4 shows the number of athletes who made it to a sprint final at a global championship (maximum of 8 finalists). On average, male sprinters qualified for the global championships on 2.4 occasions, and the male finalists made it that far on two occasions. The women qualified on slightly fewer occasions (2.3) and the finalists reached that level an average of 1.5 times. The number of each type of medal won by European U23 competitors in these events is also shown, although six of the 11 won by 400m runners were achieved over 800m.

Table 3: Number of athletes at U23 and global level and average time taken to qualify in the sprint events

	Men				Women			
	Athletes	Global	%	Global Wait	Athletes	Global	%	Global Wait
<b>100m</b>	184	40	22	1.3 years	171	43	25	0.9 years
<b>200m</b>	169	48	28	0.6 years	144	48	33	0.9 years
<b>400m</b>	173	39	23	1.7 years	145	37	26	2.2 years

Table 4: Number of finalists at global level, average time taken to reach the final, and medals won in the sprint events

	Men			Women		
	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>
<b>100m</b>	3	2.3 years	0 / 0 / 0	6	3.8 years	1 / 0 / 0
<b>200m</b>	6	2.9 years	0 / 0 / 0	6	4.5 years	0 / 0 / 1
<b>400m</b>	6	2.8 years	1 / 3 / 2*	5	4.2 years	3 / 1 / 1 <sup>€</sup>

\*5 of the 6 global medals won by male 400m competitors were over 800m.

€The women's global bronze medal was won over 800m.

Sprinters were the athletes most likely to compete over more than one distance, with many doubling up at both U23 and global levels. Indeed, many changed event between U23 and global level – e.g. 13 of the 100m runners, 21 of the 200m runners, and 14 of the 400m runners did not compete globally in the event they participated in at the U23 Championships.

Although he competed over 400m at the U23 championships in 2001, Yuriy Borzakovskiy (RUS) went on to compete in 9 global championships over the longer 800m distance, winning 1 gold, 2 silver and 2 bronze medals.

### Middle distance and steeplechase

The number of athletes competing in the middle distance events (including the steeplechase) at the U23 Championships, the number and percentage of those who went onto global competition, and the Global Wait involved are shown in Table 5. Of the men, 13 800m runners, 24 1500m runners, and 29 steeplechasers competed in more than one U23 Championships; while for the women, the equivalent numbers were 11, 13 and 19. There was no women's steeplechase held at the 1999 U23 Championships, and the event's relative newness to international competition (first appearing at a global championship in Helsinki in 2005) is shown by its comparatively low number of contestants.

Table 5: Number of athletes at U23 and global level and average time taken to qualify in the middle distance and steeplechase events

	Men				Women			
	Athletes	Global	%	Global Wait	Athletes	Global	%	Global Wait
<b>800m</b>	167	44	26	0.7 years	132	35	27	1.5 years
<b>1500m</b>	163	32	20	1.2 years	140	41	29	2.3 years
<b>3000m SC</b>	157	42	27	2.5 years	99	32	32	1.5 years

The number of global athletes who went on to compete in finals of the middle distance events, as well as the time taken to reach them and medals won, are shown in Table 6. Those middle distance men who qualified for the global championships reached them on average 2.7 times, while the finalists made it back on approximately two occasions. Women qualified on average 2.5 times, while the finalists made it to that ultimate stage 1.7 times. The average of 5.1 years it took the 800m women to reach a global final is the longest of all events, and on average female 800m finalists only made it that far once (1.1 times).

In many events, the total number of medals won exceeds the total number of individual medal winners, as world-class athletes tend to win medals on more than one occasion. It was therefore unusual that the six medals won by 1500m women were won by six different individuals. Like the sprinters, the middle distance runners were very likely to double up, usually with the 800m, steeplechase or 5000m. In fact, six 800m and six 1500m female U23 competitors ended up doing a different event at global level.

Table 6: Number of finalists at global level, average time taken to reach the final, and medals won in the middle distance and steeplechase events

	Men			Women		
	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>
<b>800m</b>	8	2.4 years	1 / 0 / 1	10	5.1 years	0 / 0 / 0
<b>1500m</b>	12	2.7 years	0 / 1 / 3	17	2.9 years	0 / 3 / 3
<b>3000m SC</b>	13	3.2 years	0 / 2 / 2	14	4.5 years	0 / 0 / 0

Of all athletes analysed, Jéssica Augusto (POR) covered the widest range of events. She took part in the 1500m at the U23 Championships in 2001, before competing over 5000m in the 2003 U23 Championships. At global level, she also competed over 5000m on three occasions, before taking part in the World steeplechase final in 2009, the World 10,000m final in 2011, and the Olympic Marathon in 2012.

### Long distance and race walks

The number of athletes competing in the long distance events (including the 20km race walk) at the U23 Championships, the quantity and proportion of those who went onto global competition, and the Global Wait involved are

shown in Table 7. Of the men, 16 5000m runners, 15 10,000m runners, and 20 race walkers competed more than once in the U23 Championships; while amongst the women, the numbers were 11, 9 and 23 respectively.

Table 7: Number of athletes at U23 and global level and average time taken to qualify in the long distance and race walk events

	Men				Women			
	Athletes	Global	%	Global Wait	Athletes	Global	%	Global Wait
<b>5000m</b>	142	24	17	4.4 years	114	28	25	2.8 years
<b>10000m</b>	126	19	15	4.1 years	109	24	22	3.4 years
<b>Walk</b>	127	53	42	1.8 years	124	52	42	1.9 years

The number of global athletes who went on to compete in finals of the long distance and race walk events, as well as the time taken to reach them and medals won, are shown in Table 8. Those men who qualified for the global championships in the 5000m and 10,000m reached them on average 2.2 times, while the finalists made it there 1.7 times on average. Women qualified for the 5000m and 10,000m events 2.8 times on average, while the finalists made it to that stage on 2.8 occasions. While there are usually heats in the 5000m at global level (effectively semi-finals), these are held

over 10,000m on very few occasions, and not at all for the 20km walk. For this reason, there are a much greater number of U23 athletes who went on to be finalists in the race walk (the highest numbers for any event).

Race walkers tend to only compete in that discipline (over 20km or 50km), while the distance runners were actually more likely to move up from their U23 distance of either 5000m or 10,000m to the marathon at global level (25 of the 40 men, and 31 of the 41 women).

Table 8: Number of finalists at global level, average time taken to reach the final, and medals won in the long distance and race walk events.

	Men			Women		
	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>
<b>5000m</b>	22	4.6 years	5 / 1 / 1 <sup>†</sup>	20	3.4 years	0 / 4 / 1 <sup>§</sup>
<b>10000m</b>	18	4.3 years	0 / 0 / 0	21	4.1 years	0 / 1 / 1 <sup>§</sup>
<b>Walk</b>	53	1.8 years	7 / 2 / 5	52	1.9 years	3 / 1 / 9

<sup>†</sup>3 of the 7 global medals won by male 5000m competitors were in the 10,000m, and one (bronze) was in the 3000m steeplechase.

<sup>§</sup>Two medals won by a female competitor who took part in the U23 5000m competition (which were in the steeplechase and marathon) are also counted in the 10,000m calculation as she also took part in this event. Two other silver medals (achieved by a 5000m U23 competitor) were won at global level over 10,000m.

Pablo Villalobos (ESP) took part in the 5000m at the 1999 U23 Championship but had to wait 12 years before he made his global championship debut over the marathon distance in 2011; this was the longest transition time for any U23 athlete.



### Hurdles and Combined events

The number of athletes competing in the hurdle events and combined events at the U23 Championships, the numbers and percentage who went onto global competition and the Global Wait they experienced are shown

in Table 9. Of the men, 26 110m hurdlers, 26 400m hurdlers, and 15 decathletes competed more than once in the U23 Championships. Amongst the women, the numbers for the 100m hurdles, 400m hurdles, and heptathlon were 34, 17 and 17 respectively.

Table 9: Number of athletes at U23 and global level and average time taken to qualify in the hurdle events and combined events

	Men				Women			
	Athletes	Global	%	Global Wait	Athletes	Global	%	Global Wait
<b>100/110m</b>	150	51	34	1.5 years	143	37	26	1.7 years
<b>400m H</b>	184	32	17	1.4 years	133	31	23	1.1 years
<b>Combined</b>	138	42	30	1.7 years	118	51	43	1.3 years

The numbers of global athletes who went on to compete in finals of the hurdle races and combined events, as well as the time taken to reach them and medals won, are shown in Table 10. Those men who qualified for the global championships in the hurdles races reached them an average of 2.4 times, while the finalists made it there 1.9 times. Women qualified for

the hurdle events 2.6 times, while the finalists made it to that stage 1.7 times on average. As with the race walk, there is only a straight final for the combined events and so the number of finalists is very high. On average, decathletes who made it to global level did so on 2.6 occasions on average, while heptathletes averaged three finals each.

Table 10: Number of finalists at global level, average time taken to reach the final, and medals won in the hurdle events and combined events

	Men			Women		
	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>
<b>100/110m</b>	9	2.7 years	1 / 0 / 1	9	4.0 years	2 / 1 / 0 <sup>§</sup>
<b>400m H</b>	6	2.0 years	1 / 0 / 4	9	2.9 years	1 / 0 / 3
<b>Combined</b>	41	1.7 years	0 / 3 / 5	51	1.3 years	4 / 4 / 2 <sup>†</sup>

<sup>§</sup>All three global medals were won by a single individual competing in the heptathlon.

<sup>†</sup>One of these heptathlon gold global medals was won in the high jump.

There were very few instances of athletes changing event from either hurdles race (or even between them), but many heptathletes did compete in individual events, such as the long jump and shot put, at either U23 or global

levels. It should be noted that the reason for the discrepancy in numbers of global athletes and finalists for the decathlon is because one athlete made it at global level in another event (but didn't reach the final).

Jessica Ennis-Hill (GBR) and Carolina Klüft (SWE) both won Olympic Gold in the heptathlon but competed in the 100m hurdles and long jump at the European U23 Championships respectively. By contrast, Tia Hellebaut (BEL) won the Olympic high jump having competed in the heptathlon at the European U23 Championships.

### Jumps

The number of athletes competing in the four jumping events at the U23 Championships, the numbers and proportion who went onto global competition and the Global Wait they underwent are shown in Table 11. Of the

male athletes, 19 long jumpers, 22 triple jumpers, 15 high jumpers and 27 pole vaulters competed more than once in the U23 Championships. With regard to the female competitors, the numbers for the four jump events were 10, 18, 20 and 27 respectively.

Table 11: Number of athletes at U23 and global level and average time taken to qualify in the jumping events

	Men				Women			
	Athletes	Global	%	Global Wait	Athletes	Global	%	Global Wait
<b>Long J</b>	159	28	18	1.3 years	134	41	31	1.1 years
<b>Triple J</b>	131	38	29	0.8 years	127	31	24	1.2 years
<b>High J</b>	156	52	33	1.7 years	130	45	35	1.3 years
<b>Pole vault</b>	134	52	39	1.3 years	153	47	31	0.9 years

The numbers of global athletes who went on to compete in finals of the jumping events, as well as the time taken to reach them and medals won, are shown in Table 12. Those men who qualified for the global champion-

ships in the jumps reached them an average of 2.8 times, while the finalists made it to the last 12 on 2.1 occasions. Women qualified for the jumping events an average of 2.7 times, while the finalists made it there 2.4 times.

Table 12: Number of finalists at global level, average time taken to reach the final, and medals won in the jumping events

	Men			Women		
	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>
<b>Long J</b>	14	1.9 years	1 / 1 / 3 <sup>†</sup>	22	3.3 years	4 / 3 / 2 <sup>‡</sup>
<b>Triple J</b>	18	1.7 years	6 / 5 / 1	15	2.9 years	1 / 0 / 2
<b>High J</b>	28	2.9 years	3 / 2 / 4	20	2.2 years	4 / 3 / 4
<b>Pole vault</b>	27	2.3 years	5 / 3 / 7	21	1.1 years	6 / 3 / 7

<sup>†</sup>1 of the bronze global medals won by a male long jumper was in the triple jump.

<sup>‡</sup>All four women's gold global medals won by a female long jumper were in the heptathlon

Women jumpers took up different events more often than men; for example, 9 of the female long jumpers who competed globally did so in the triple jump (the men's equivalent

number was only 2). Interestingly, the pole vault was the only jump event where no U23 athletes ended up competing in another event at global level.

The most successful athlete to have competed at the European U23 Championships is Elena Isinbayeva (RUS), who was U23 pole vault champion in 2003 and went on to win two Olympic and three World titles and is the current World Record holder.

## Throws

The number of athletes competing in the four throwing events at the U23 Championships, the numbers and percentages who went onto global competition and their Global Wait are shown in Table 13. Of the male athletes, 20

shot putters, 37 discus throwers, 22 hammer throwers and 18 javelin throwers competed twice in the U23 Championships. With regard to the women, the numbers who competed on two occasions in the four throwing events were 16, 27, 28 and 22 respectively.

Table 13: Number of athletes at U23 and global level and average time taken to qualify in the throwing events

	Men				Women			
	Athletes	Global	%	Global Wait	Athletes	Global	%	Global Wait
<b>Shot put</b>	147	42	29	1.6 years	108	26	24	2.5 years
<b>Discus</b>	159	41	26	2.0 years	122	24	20	1.9 years
<b>Hammer</b>	135	38	28	2.1 years	145	50	34	0.7 years
<b>Javelin</b>	144	48	33	1.3 years	125	35	28	0.9 years

The numbers of global athletes who went on to compete in finals of the throwing events, as well as the time taken to reach them and medals won, are shown in Table 14. Those men who qualified for the global championships in the throws reached them an average of 3.5 times, while the finalists made it to that

stage on 2.6 occasions. Women qualified for the throws an average of 3.4 times, while those who made the final did this an average of 2.7 times. Overall, the throwing events represented the best events for U23 athletes in terms of number of times to qualify for global competition, and numbers of medals won.

Table 14: Number of finalists at global level, average time taken to reach the final, and medals won in the throwing events

	Men			Women		
	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>	Finalists	Final Wait	1 <sup>st</sup> / 2 <sup>nd</sup> / 3 <sup>rd</sup>
<b>Shot put</b>	17	4.4 years	4 / 4 / 3	14	2.3 years	1 / 6 / 2
<b>Discus</b>	14	3.6 years	6 / 8 / 3	9	2.4 years	0 / 3 / 2
<b>Hammer</b>	20	3.8 years	4 / 5 / 4	24	2.1 years	7 / 5 / 4
<b>Javelin</b>	26	2.0 years	6 / 8 / 2	16	2.7 years	5 / 6 / 4

In general, throwers tended to stick to their own event at global level, e.g. no javelin or hammer competitors from the U23 Championships went on to take part in any other event

at global level. However, the shot put was a popular event at global level for U23 discus throwers – 8 men and 2 women ended up competing in this other event.

Nine of the 12 finalists in the 2008 Olympic men's javelin competition had competed in the European U23 Championships, including the three medallists: Andreas Thorkildsen (NOR, gold), Ainars Kovals (LAT, silver) and Tero Pitkämäki (FIN, bronze). Incidentally, all three medallists had competed together in the U23 competition in 2003.

### Medal summary

The number of medals won by U23 competitors at global level is shown in Table 15 by competing nation (the athletes of 31 of the 50 EAA member federations went on to win a global medal).

The total number of medals won was 275 (147 by men, 128 by women). Some athletes won more than one medal, and as a result the total number of male medallists was 79, and the number of female medallists was 66 (for a combined total of 145 individual medal winners).

Table 15: Number of medals won by former European U23 athletes at global level

	Men			Women			Total		
	Gold	Silver	Bronze	Gold	Silver	Bronze	Gold	Silver	Bronze
Belarus		3		3	5	2	3	8	2
Belgium				1			1		
Croatia				2	2		2	2	
Cyprus		1	1					1	1
Czech Republic			2	4	2	4	4	2	6
Denmark		1						1	
Estonia	3	4	2				3	4	2
Finland	1	1	3				1	1	3
France	3	7	7		1	3	3	8	10
Germany	9	3	4	2	11	5	11	14	9
Great Britain	7	4	2	5	4	2	12	8	4
Greece			1	1			1		1
Hungary	1	2	1				1	2	1
Iceland						1			1
Ireland	1						1		
Italy	2		3			1	2		4
Latvia		2				1		2	1
Lithuania					1			1	
Netherlands	1	1	1				1	1	1
Norway	3	3					3	3	
Poland	4	4	3	3	3	5	7	7	8
Portugal	2	1	2				2	1	2
Romania		1	1			1		1	2
Russia	8	5	7	16	12	6	24	17	13
Serbia			1			1			2
Slovakia			1			1			2
Slovenia	2	2	1				2	2	1
Spain		1	3			2		1	5
Sweden	2	1		4		1	6	1	1
Turkey					4			4	
Ukraine	2	1	2	3		3	5	1	5
<b>Total</b>	<b>51</b>	<b>48</b>	<b>48</b>	<b>44</b>	<b>45</b>	<b>39</b>	<b>95</b>	<b>93</b>	<b>87</b>

## Discussion

The aim of this study was to evaluate the role of the European Athletics U23 Championships in the development of elite athletes. The results showed that the championships are indeed a key component of this development in Europe, with approximately 40% of athletes from a given championships eventually reaching global level. Of the nations with the largest contingents, Russia and Ukraine were particularly successful in achieving the transition to global status (success rates of 37% and 40% respectively), with U23 athletes from Russia, Great Britain and Germany going on to achieve large medal hauls at global level. Because transition times to competition could be quite long for some events (e.g. distance running), many athletes who took part in the latter editions (e.g. in 2011 and 2013) should progress to World Championships and Olympic Games within the next few years. Coaches and others involved in high performance positions should therefore note that even just qualifying for global championships can take time, and the U23 Championships are an invaluable opportunity (not available to others in some IAAF Areas) for athletes to bridge the gap from youth / junior

competition to senior level. The European U23 Championships are also very necessary for late developers, who may not have been good enough to compete in youth or junior championships, and need the experience of elite, championship-style competition.

Of course, the European U23 Championships are not only a development opportunity for young athletes who wish to compete at the highest level; rather, they are an elite competition in themselves, and the increasing number of entrants year-on-year (along with the fact that all Member Federations have taken part at some time) shows that they are an attractive and important feature of the European athletics calendar. As stated above, they can be many athletes' first experience of an international tournament, and because of its format (e.g. heats, semi-finals), can help prepare them for the "cut and thrust of the Olympic or World Championship arenas"<sup>1</sup>.

The value of the U23 Championships to elite athletes was shown not only by the considerable numbers who returned to compete a second time, but more significantly by those who participated having already taken part in global



*Late developers – Mo Farah (GBR) won the long distance double over 5000m and 10,000m at the 2012 Olympic Games and 2013 World Championships, but only won silver over 5000m at both the 2003 and 2005 European U23 Championships. Similarly, Robert Heffernan (IRL) was last to finish the 20km race walk at the European U23 Championships in 1999 – but 14 years later became World Champion over 50 km (Photos: [www.iaaf.org](http://www.iaaf.org)).*



*Long jump...triple jump...high jump...pole vault – Aleksandr Menkov (RUS), Nelson Evora (POR), Bohdan Bondarenko (UKR) and Renaud Lavillenie (FRA) all became global title-holders having competed at the European U23 Championships (Photos: www.iaaf.org).*

championships, including well-known athletics stars like Blanka Vlašić (CRO), Andreas Thorkildsen (NOR) Yelena Isinbayeva (RUS), and Carolina Klüft (SWE). The U23 Championships therefore go further than a development activity in that they function in the maintenance of elite athletes.

The best events for athletes progressing from the European U23 Championships were those where European athletes are traditionally strong, such as race walking, jumps, throws, and combined events (and often their main rivals in global competition were older European compatriots). In general, the time taken to reach a global competition or reach its final was quite short in these events, and athletes tended to qualify or reach the final more than once.

By contrast, athletes tended not to fare so well in the sprints or distance running events, although there were of course exceptions to this. It was particularly informative that so many long distance runners ended up competing in only the marathon at global level, and that the transition time was so long (reflecting the nature of the event). However, while it is disappointing that so few athletes went on to the 5000m and 10,000m at global level, there is clearly still value in athletes taking part in the shorter distance races (and 20km walk) that are available at U23 level even if they intend to specialise at the marathon or 50km walk.

One of the noticeable aspects of this study was the high numbers of women competing in the relatively new events of pole vault and hammer (both of which first appeared in the World Championships in 1999), and the high success rate with regard to global medals won. Without the European U23 Championships, these female athletes might have struggled to gain top-level experience of these events given its newness to international competition, and indeed it was in these events that most women had already gained global experience. The U23 Championships thus have a key role in becoming familiar with competition demands.



*The women's hammer was one of the most successful events for graduates of the European U23 Championships, with the most gold medals won (seven) (Photo: www.iaaf.org).*

## Conclusion

This study has shown that the European U23 Championships are an important part of the development pathway of elite athletes. Considerable numbers of competitors from each edition of the Championships go on to compete in the World Championships or Olympic Games, and often within only a year or two of participating. Furthermore, these athletes very often made it to this level of competition on more than one occasion. This was especially true of traditionally strong events for Europe, such as the field events, combined events and race walking, where not only did many U23 athletes go on to feature in the final on a consistent basis, but also win medals. The European U23 Championships can be especially beneficial for those late developers who did not manage to compete at earlier large championships such as the IAAF World Youth Championships or the European Junior Championships, but who still need championship experience to get used to the pressure and format of international competition. Finally, the U23 Championships are also a great spectacle for fans of elite athletics who can get a preview of future athletics stars.

## Recommendations

Athletes should note that the European U23 Championships are a key development competition, as relevant for those who have already made global championships as those who are still progressing from junior level, and a high-class competition where they might line up against current or future stars of athletics.

Coaches and administrators should ensure that the European U23 Championships are a recognised milestone on the development pathway for their elite athletes, and a worthwhile investment in their athletic careers. This should span all events, including those not included on the programme such as the marathon and 50km race walk. They should also note that for most athletes, the development path can take some time and perseverance is needed in all events. Even those athletes who make it to global competition quite quickly can take considerably more time to reach finals, especially

in events where Europeans are not traditionally strong.

There is already a presence of other U23 competitions in Europe, such as in the European Cross Country Championships and European Cup Winter Throwing event. Other similar events might also lend themselves to U23 competitions or sub-events; for example, the European Cup Race Walking event could conceivably include an U23 category (where U23 athletes would race with the senior field as the distances are the same). This would not require any more judges or separate races, and could encourage federation members to enter more of their younger athletes on their teams. Such an approach could also be recommended further and taken up as part of the IAAF World Race Walking Cup, and applied in the same way to other international events (e.g. World Half Marathon Championships).

Promotion of the European U23 Championships should continue to highlight the benefits of participating as shown by the results of this study; for example, the fact that so many global champions have taken part, that even those who are already global athletes return as part of their continued development, and that an athlete who competes could ultimately be in direct competition with future World and Olympic champions and gain enormously from such experiences. The ever-increasing numbers attending the U23 Championships suggest that this important message is being heard and understood, but this study further strengthens such arguments and provides a clear rationale with regard to their role in the development of athletics.

Future studies could look at the benefits of other U23 competitions on the future prospects of the participants, e.g. in the European Cross Country Championships, but also in other Areas such as those U23 championships held in the Americas.

***Please send all correspondence to:***

*Dr Brian Hanley*

*b.hanley@leedsbeckett.ac.uk*

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