



Results in Javelin Throwing

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Data Available

- World Lists:
 - marks for positions 1, 3, 8, and 20
 - countries represented in top 20
 - age of the top 20 and top 8
- Major Championships (World and European Champs., Olympic Games)
 - marks for positions 1, 3, 8, and final standard (q)
 - countries represented
- Performances of top throwers
 - Annual performance
 - Career progression
 - Seasonal progress

World Best Lists (WBL)

■ Senior

Men

- Old Model (1960-1985)
- New Model (1986-2009)

Women

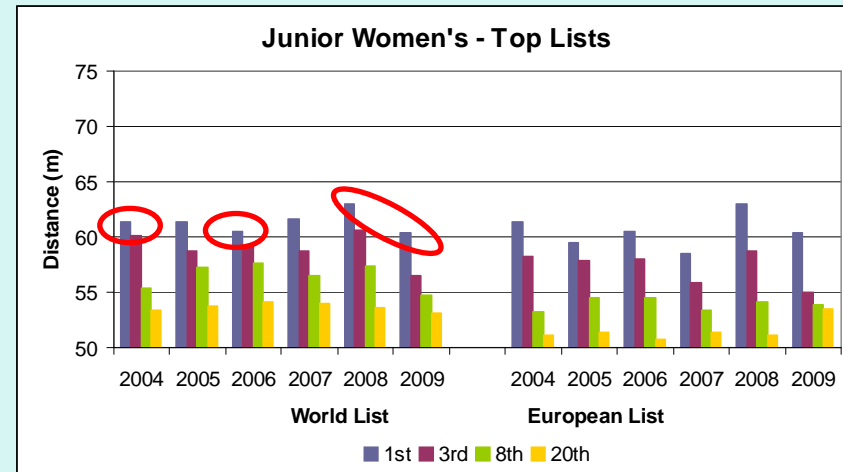
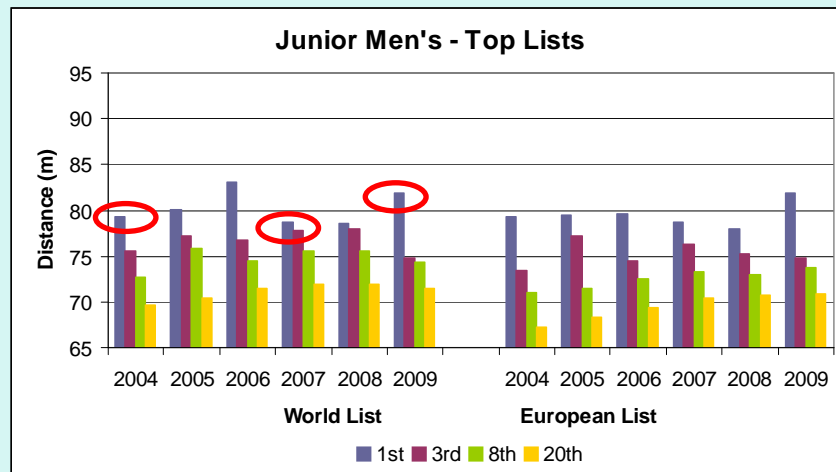
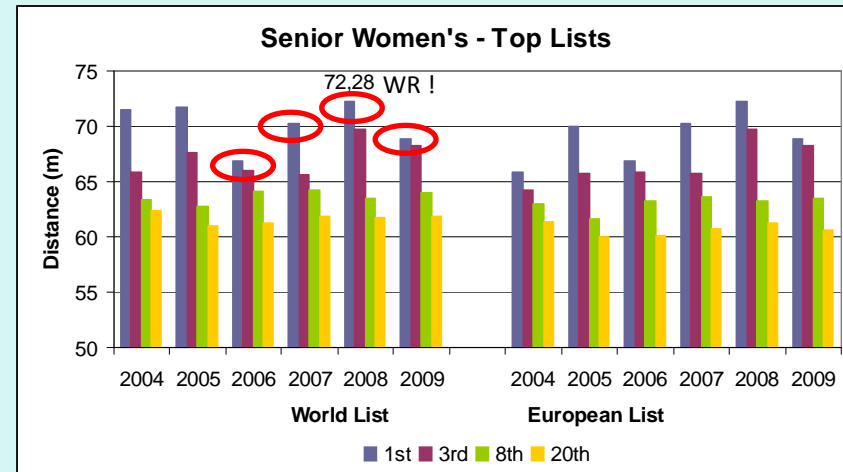
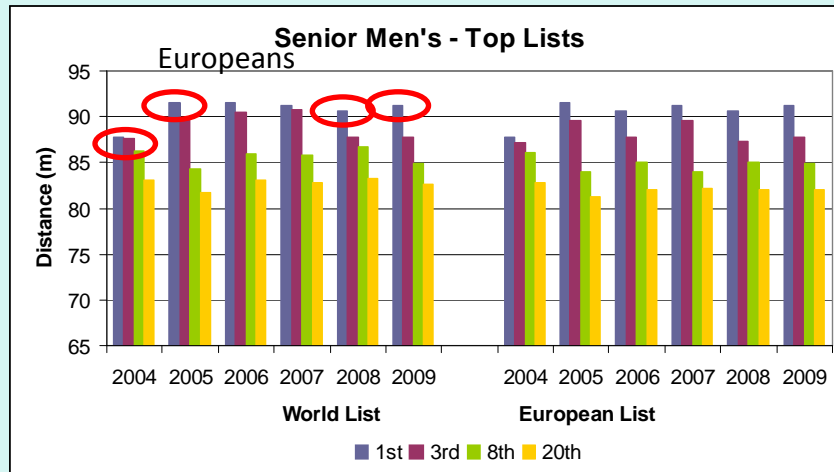
- New Model (1999-2009)

■ Junior

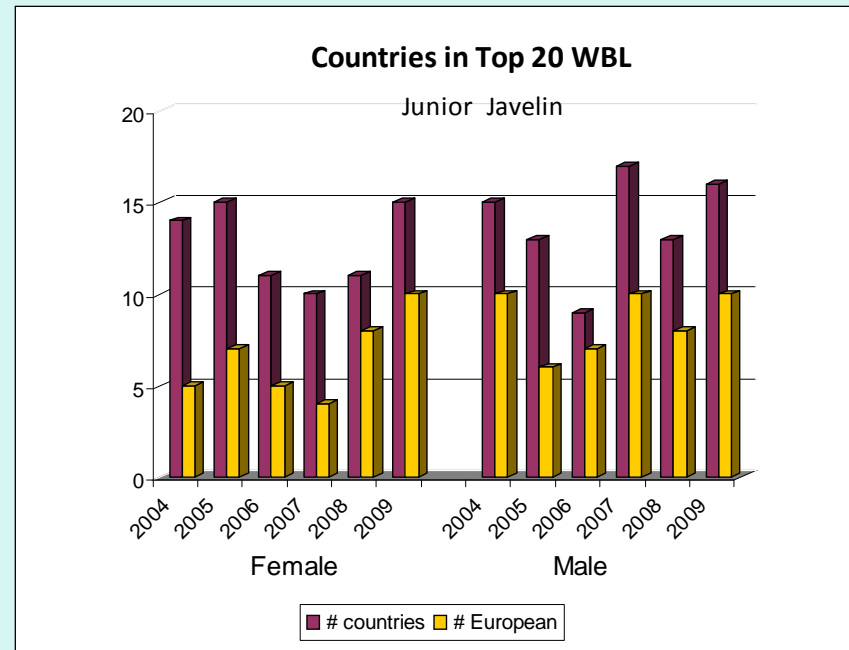
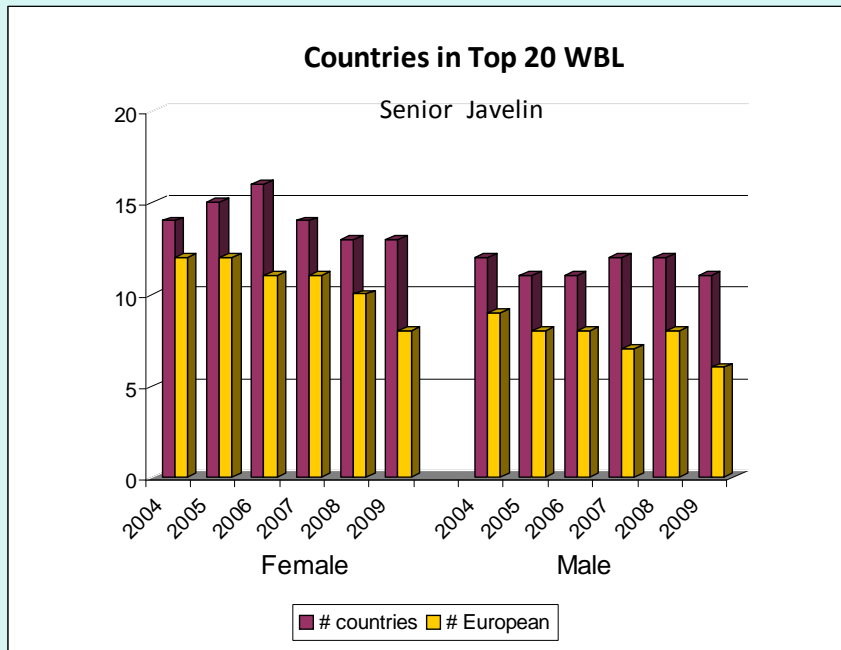
Male (1995-2009)

Female (1999-2009)

World and European Top Lists (last 6 yrs.)



European Countries in WBL (last 6 years)



Senior:

- Higher number of Europeans in Male Top Lists. Countries such as USA (Greer B.), Cuba (Martinez G.) or South Africa (Oosthuizen)
- Most represented non-European country for females is Cuba.

Junior:

- Male, representation of a wider variety of countries: South Africa (2-3 athletes in 2004-2006)
- Female, country most represented is China with mean of 7 athletes 06-08. No Chinese throwers this year!

Number of Countries in Top 20 WBL

The Old Model - Senior Men

	1960	61	62	63	64	65	66	67	68	69	70	71	72
Soviet Union	5	7	3	3	4	2	4	5	3	3	3	5	6
USA	4	0	2	4	5	3	2	5	3	4	5	4	4
Finland	3	2	1	2	2	5	5	2	3	3	3	3	5
GDR	3	2	1	0	0	1	1	1	1	1	1	1	2

	73	74	75	76	77	78	79	80	81	82	83	84	85
Soviet Union	4	7	3	4	2	4	0	5	4	5	4	3	4
USA	5	2	3	4	2	2	1	2	1	2	3	5	4
Finland	6	5	5	4	5	4	4	4	6	5	4	2	1
GDR	1	1	1	0	2	2	3	4	3	2	1	3	2

Number of Countries in Top 20 WBL

The New Model - Senior Men

	1986	87	88	89	90	91	92	93	94	95	96	97
FIN	1	1	2	3	3	3	5	5	4	4	6	5
GDR-GER	3	2	3	1	1	3	1	2	2	3	4	5
SU-RUS	5	4	6	2	3	2	-	2	3	4	2	1
USA	1	4	1	1	2	-	1	1	-	1	1	1

	98	99	00	01	02	03	04	05	06	07	08	09
FIN	5	5	3	4	2	1	4	5	3	4	4	5
GER	4	3	4	4	5	5	3	3	3	1	2	2
RUS	1	1	1	1	2	2	2	2	2	4	3	2
USA	1	0	0	1	0	1	1	1	1	1	1	3

Number of Countries in Top 20 WBL

Senior Women

	Cuba	Germany	Russia	Finland	Czech Republic
1999	4	2	5	1	0
2000	2	2	2	2	1
2001	3	2	2	3	1
2002	4	2	3	3	0
2003	2	1	4	3	0
2004	3	2	1	2	1
2005	2	2	0	2	2
2006	2	2	1	1	3
2007	2	3	3	1	2
2008	1	3	2	0	1
2009	3	4	2	0	1

Number of Countries in Top 20 WBL

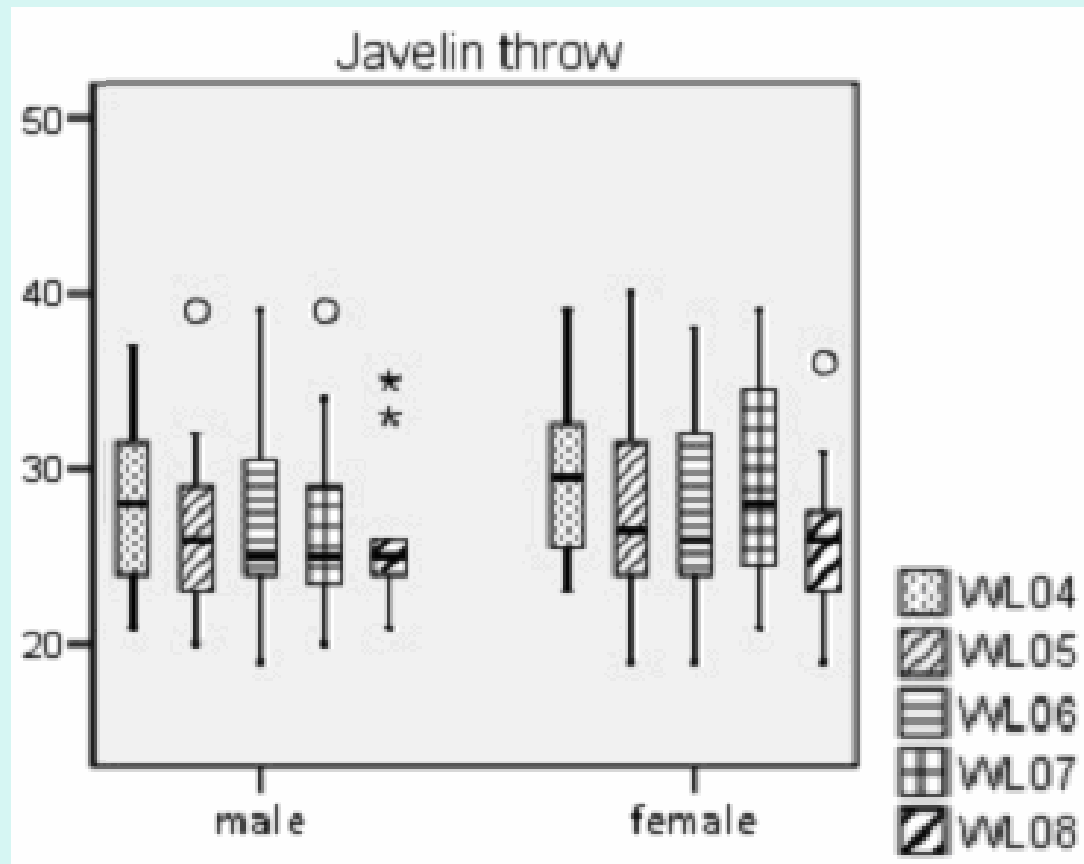
Junior Men

	1995	96	97	98	99	00	01	02	03	04	05	06	07	08	09
FIN	4	5	5	0	1	3	3	5	3	2	1	2	1	3	1
CHN	0	0	1	4	4	3	3	2	2	0	1	3	1	0	1
GER	1	2	3	0	2	1	0	0	1	1	3	4	2	2	3
RUS	0	0	0	1	1	1	3	1	1	1	0	0	0	1	1

Junior Women

	1999	00	01	02	03	04	05	06	07	08	09
CHN	6	3	8	7	6	7	3	7	8	7	0
GER	4	5	1	4	5	2	2	2	0	1	1
FIN	-	-	-	-	-	-	-	-	4	3	3

Age of the Top 20 in WBL (5 yrs.)



Box plots of the ages of throwers in top 20 of the WBL

Ruiz et al, (2008)

Ages of Athletes in Top 8 WBL - Male

The Old Model - Senior Men

	1960	61	62	63	64	65	66	67	68	69	70	71	72
Mean	26	25,6	24,9	25,4	25,6	27,5	27,6	27,6	28,4	26,9	28,9	27,1	27,3
SD	3,2	4,3	3,5	3,9	4,3	3,7	3,7	3,8	3,6	5,2	5,0	5,2	4,9
min	22	20	21	20	21	22	22	20	23	19	20	22	21
max	30	31	31	32	33	32	33	33	34	36	36	37	35

	73	74	75	76	77	78	79	80	81	82	83	84	85
Mean	25,8	24,8	24,9	25,9	25,9	25,1	24,5	24,6	25,1	25,3	26	26,3	25,4
SD	4,7	1,9	2,4	2,2	2,6	3,1	2,5	3,3	2,6	2,7	1,3	2,5	3,0
min	21	23	21	22	23	21	20	20	22	20	24	22	21
max	34	28	28	29	30	29	28	29	30	29	28	28	29

Ages of Athletes in Top 8 WBL - Male

The New Model - Senior Men

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Mean	26,9	25,3	26,6	26,1	25,6	24,6	27,0	24,9	26,0	26,3	27,0
SD	3,44	3,33	3,96	3,80	3,66	3,85	4,50	1,81	1,85	3,54	3,70
min	20	21	20	20	21	22	22	23	24	21	22
max	30	31	32	31	31	32	34	28	29	33	34

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	24,0	27,0	27,0	28,5	30,4	29,6	28,0	27,9	26,1	27,8	26,5	25,4	25,0
SD	3,30	4,66	3,55	2,83	5,04	4,81	5,73	4,94	3,36	5,75	3,59	4,24	2,67
min	21	22	23	25	24	20	21	22	22	23	24	21	21
max	30	36	33	33	39	36	37	37	32	40	34	35	28

Zelezny was 20 yrs old in 1986 and continued competing until age 40. In 2006 he was in position 6 in WBL.

Ages of Athletes in Top 8 WBL - Female

The New Model - Senior Women

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Mean	27,25	28,13	26,75	28,25	30	27,88	27,63	29,38	28,88	26,25	26,5
SD	4,7	4,6	4,7	4,7	4,8	3,8	4,1	4,1	5,4	4,6	4,8
min	19	20	21	22	23	22	23	24	21	22	22
max	33	34	33	34	38	33	34	35	36	36	37

Youngest athlete is the Cuban Osleidis-Menéndez 19 yrs. when she placed 4th in 1999 WBL.

Oldest athlete was Yekaterina Ivakina (RUS) born in December who was 38 yrs. and placed in 8th position in 2003

Major Championships

■ Olympic Games (OG):

- Men 22 OGs (since 1908)
- Women 18 OGs (since 1932)

■ World Championships (WC):

- Men and Women 12 WC (since 1983)

■ European Championships (EC):

- Men 19 ECs (since 1934)
- Women 18 ECs (since 1938)

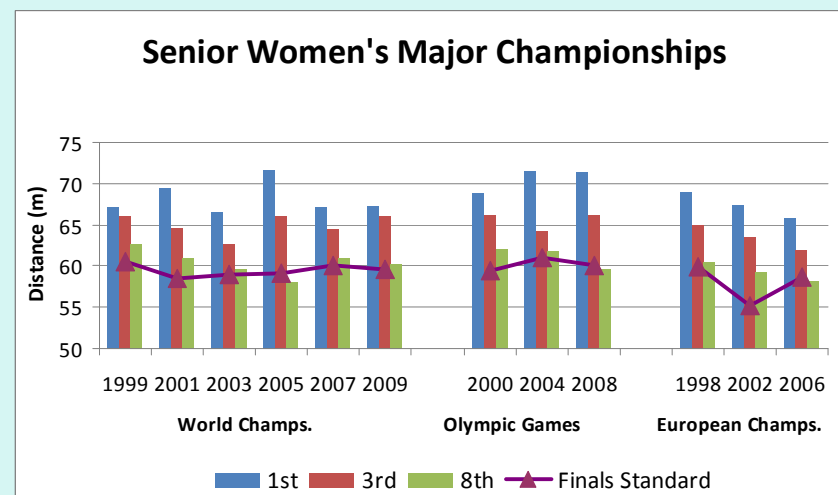
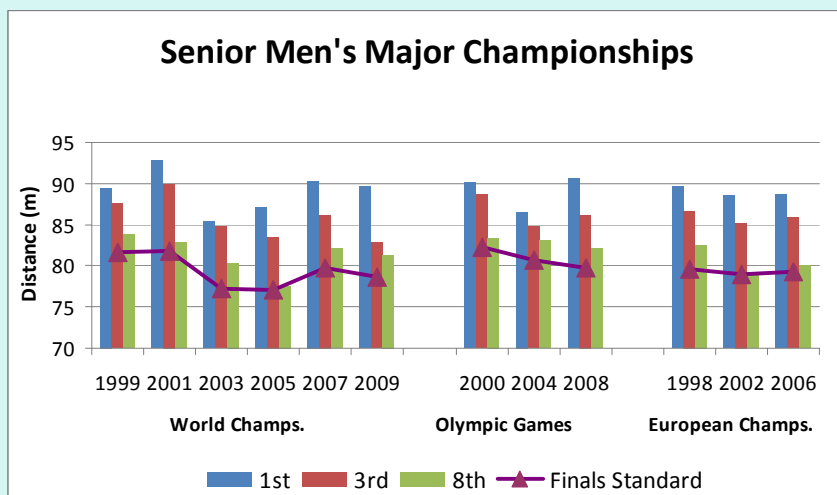
■ World Junior Championships (WJC):

- Men and Women 12 WJC (since 1986)

■ European Junior Championships (EJC):

- Men and Women 20 EJC (since 1970)

Major Championships – Senior (last 6 yrs.)



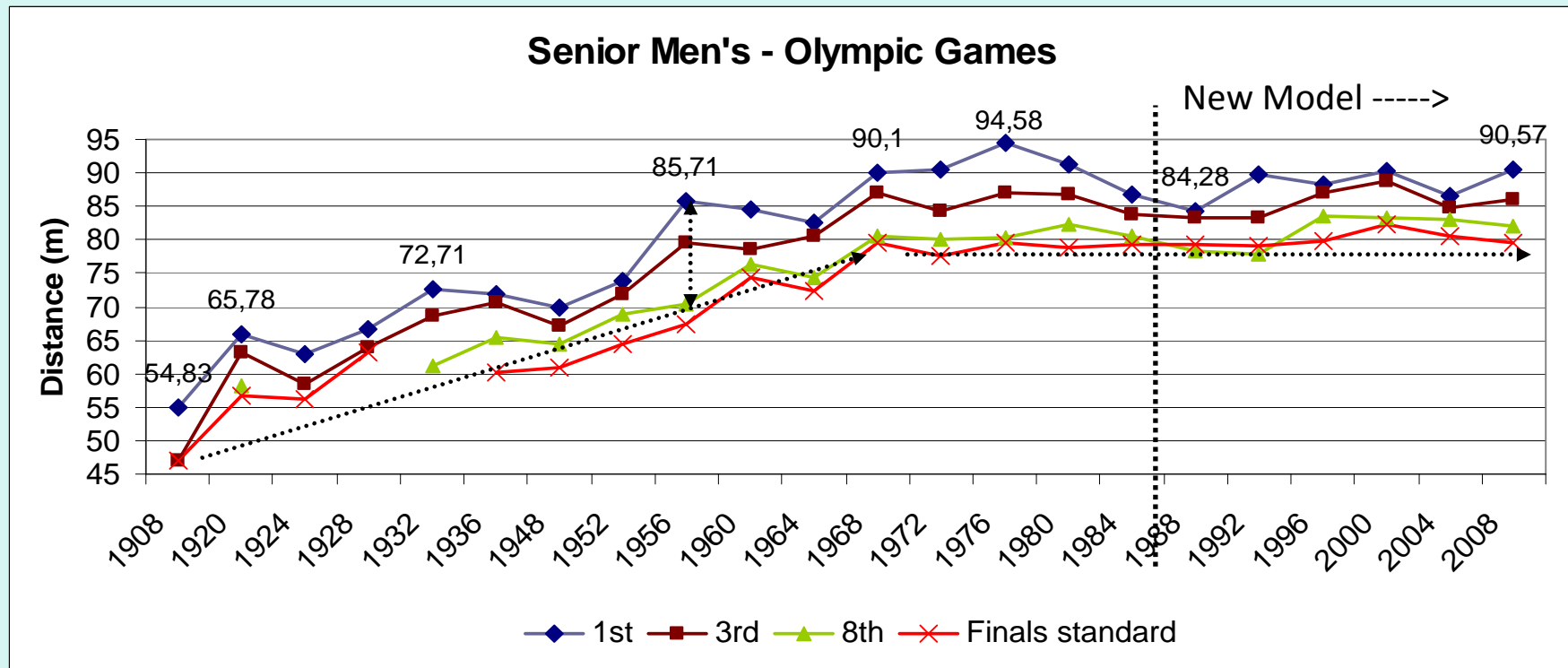
Male Senior:

- Results for positions 1st, 3rd and 8th lower at the World Championships before the Olympic Games (2000, 2004).
- higher at the World Championships after the Olympics Games than at the Olympics.

Female Senior:

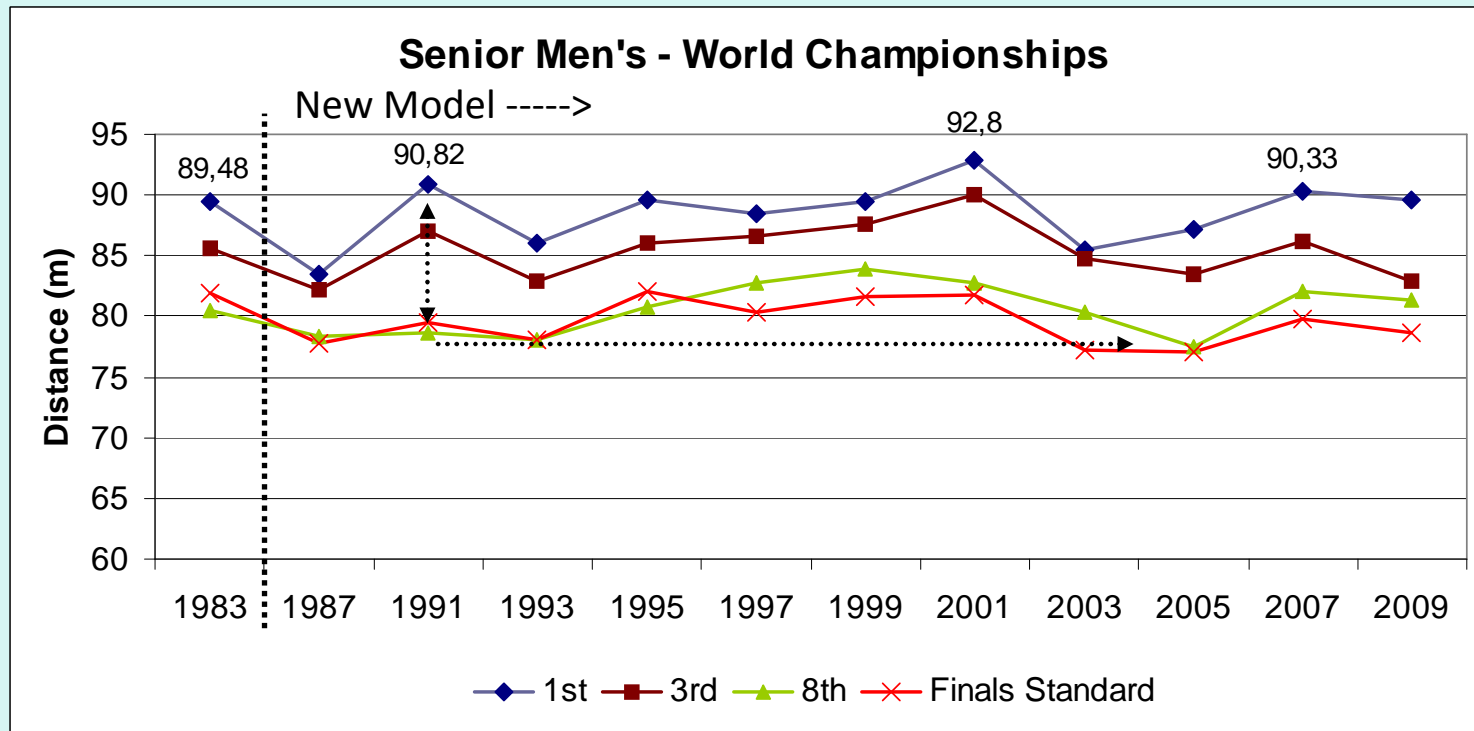
- Biggest distance between winner and bronze at Olympics in 2004 (7.24m)
- Lowest standard for the final at the EC 2002 (55.2m)

Olympic Games – Senior Men



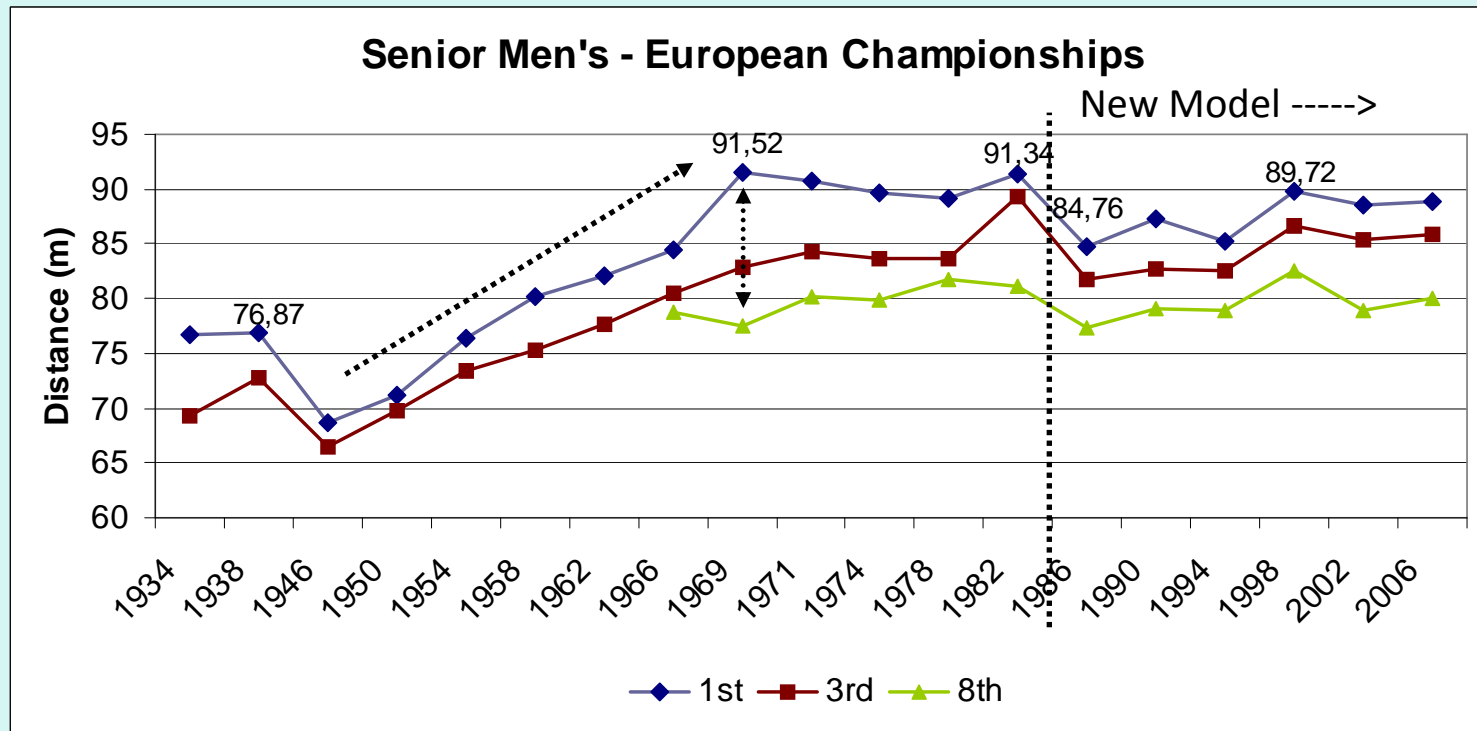
- Final standard from 47.11 m to 63.2 m in 1936. Increased until 1976 (79.48m). Relatively stable since.
- Highest gap between best and worst throw in final in 1956 OG (23.16m)
- Increase in distance of winner over the years until 1976 (Miklós Németh (HUN) 94,58m)
- New Model introduced in 1986 resulted in a drop in the results
- Highest distance thrown at Olympics during the New Model 90.57m (Andreas Thorkildsen)

World Championships – Senior Men



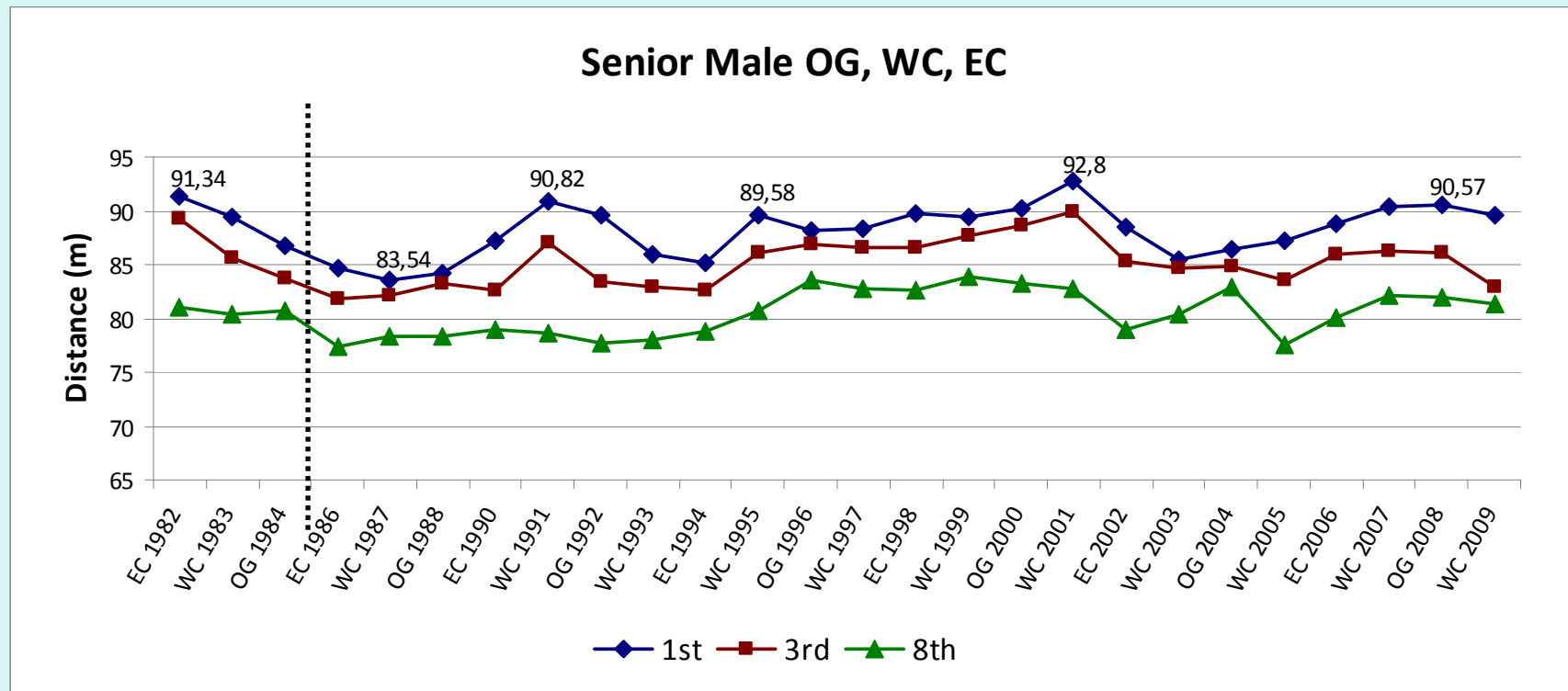
- Final standards relatively stable at around 80 m.
- 1991: Change in regulations. Furthest distance thrown: 90.82 m (Kimmo Kinnunen, FIN) in 1991. Also, distance between best and worst throw in the final was highest (20.24 m)

European Championships – Senior Men



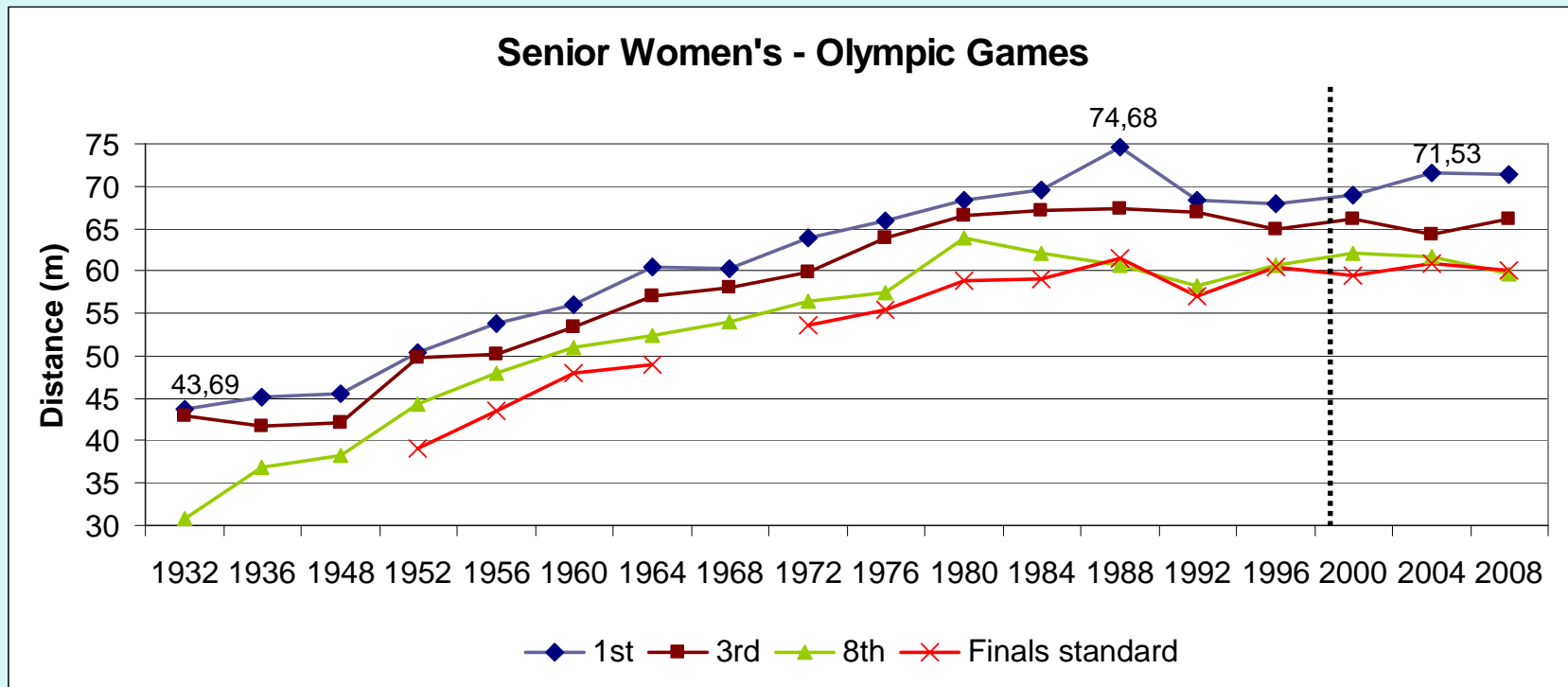
- There were only 6 finalists in EC from 1934 until 1966
- Distance of the winner dropped from 76.87m (Matti Järvinen) in 1938 to 68.74m
- Steady increase until 1969 when Janis Lusi threw 91.52m. Distance from winner throw to last in final was highest in history of EC (14.04m).

Progression in Major Championships



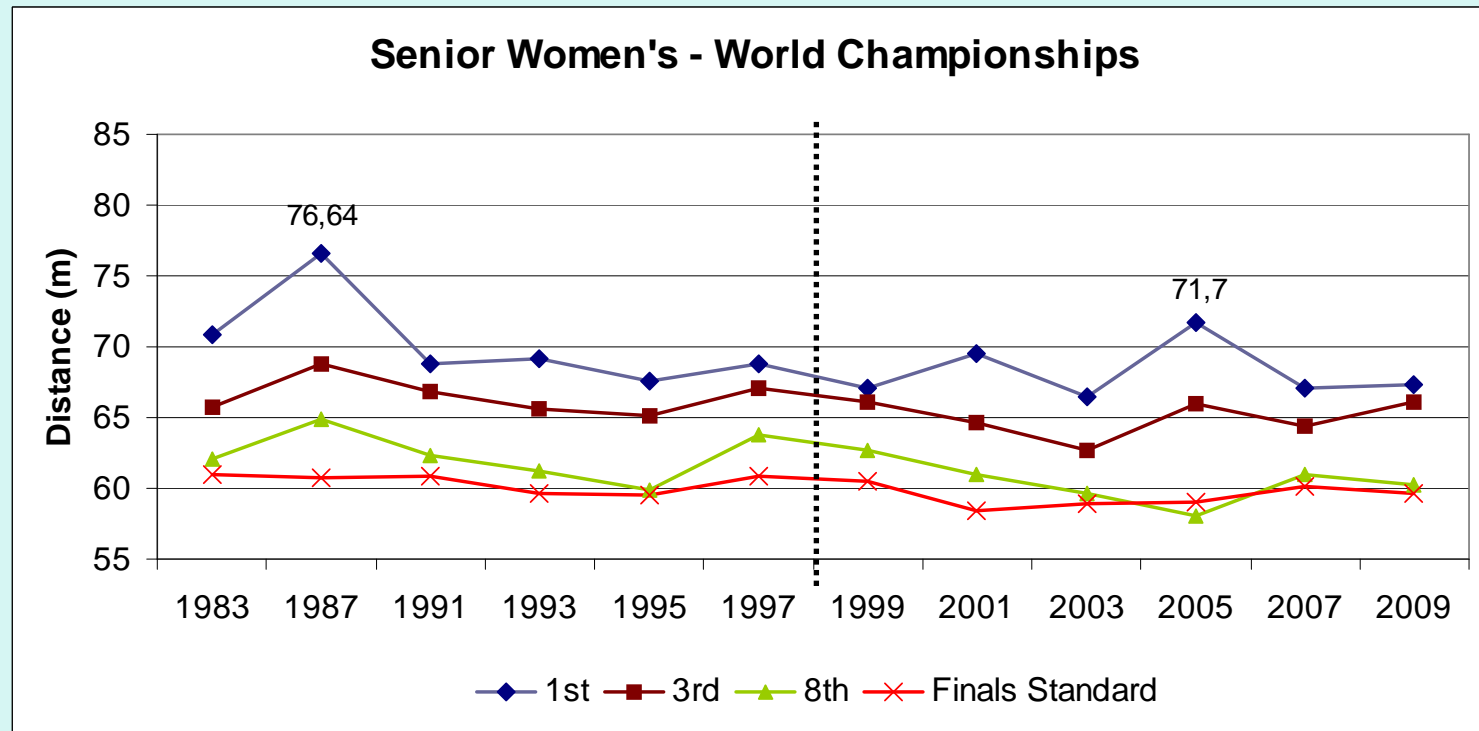
- Performance at the OG for the winner has increased (in relation to previous WC) in 4 occasions (Seoul 1988, Sydney 2000, Athens 2004 and Beijing 2008)
- Apart from the distance (91.34m) thrown by Uwe Hohn, GDR in EC 1982 (Old Model), throws over 90m were seen in World Champs. in 1991 and 2007, and during the Olympics in 2000 and 2008.

Olympic Games – Senior Women



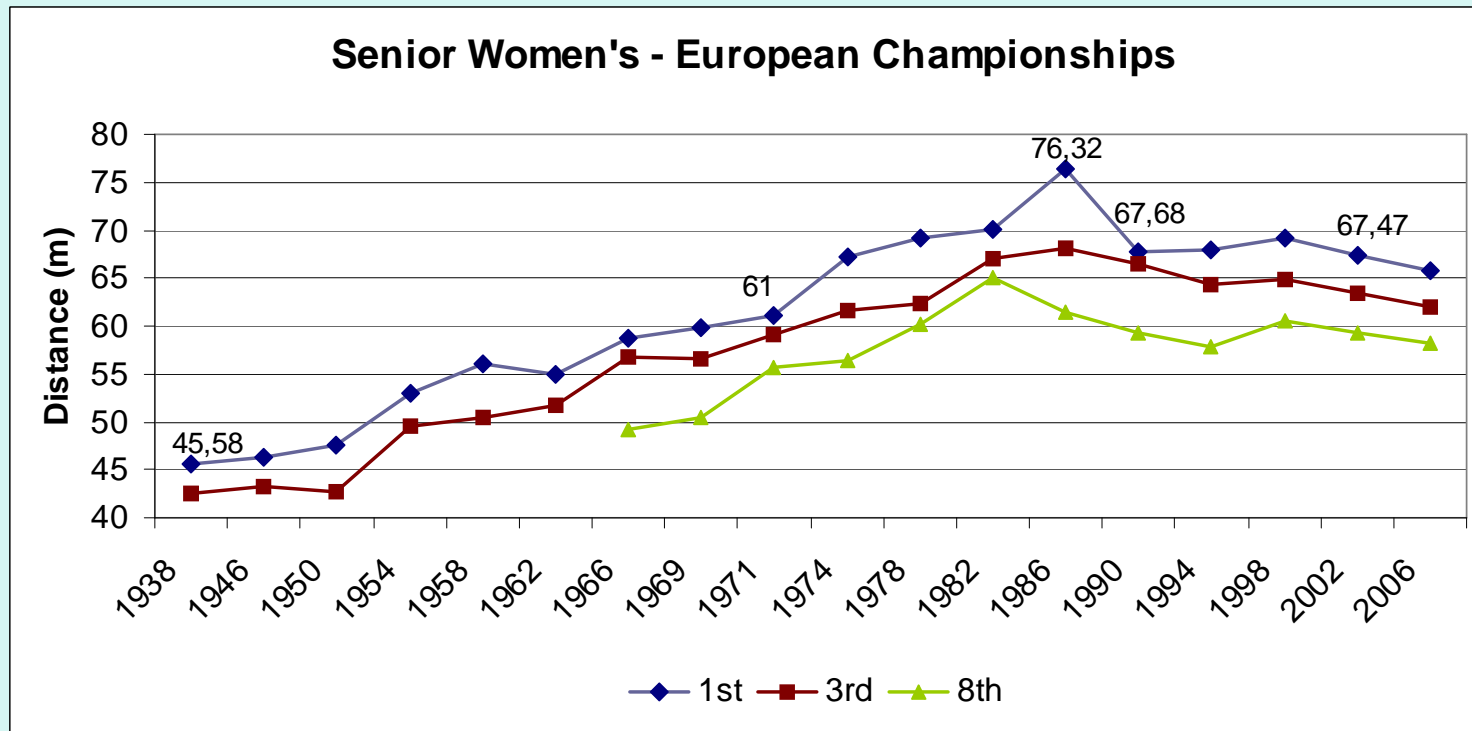
- 1999: New specifications
- Winning throw in final increased from Berlin 1936 (45.18m) to Seoul 1988. Furthest distance thrown in Seoul 1988: 74.68m (Petra Felke-Meier, East Germany). Also highest gap between best and worst throw in the finals (20.1m)
- Final standard increased from 39.1m in 1952 to 58.76m in Moscow 1980. It remains stable at around 60m since.

World Championships – Senior Women



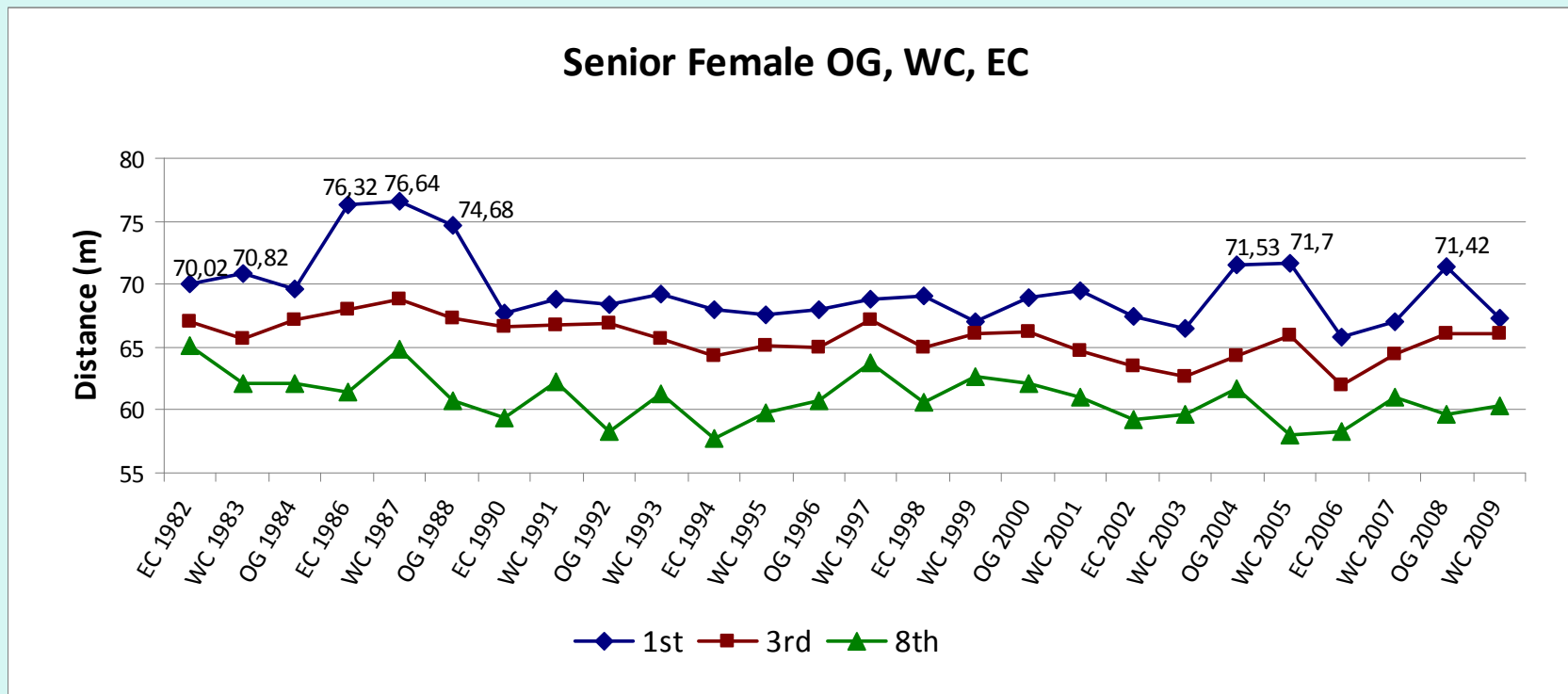
- New specifications (1999) do not seem to affect performance
- Standard to reach final maintained at around 60 m
- Furthest distance thrown in Rome WC in 1987: 76.64m (Fatima Whitbread, GBR)
- Highest gap between best and worst throw (17.26m) in the finals of 2005 when Osleidys Menéndez (Cuba) threw 71.70m

European Championships – Senior Female



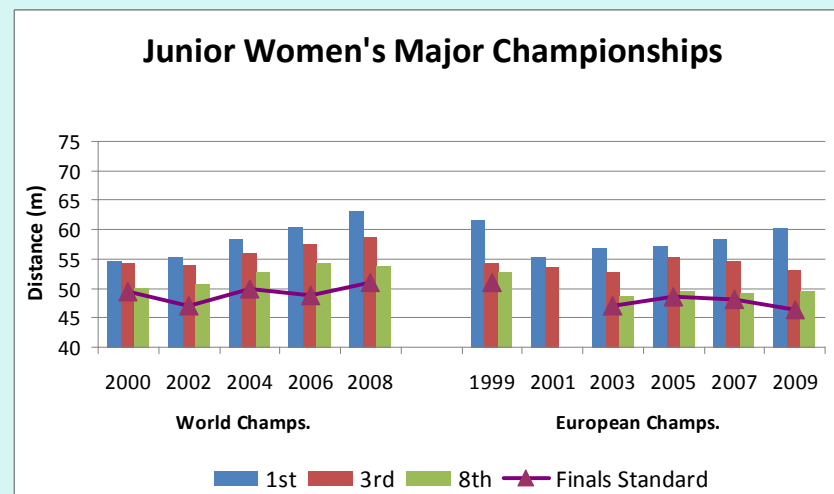
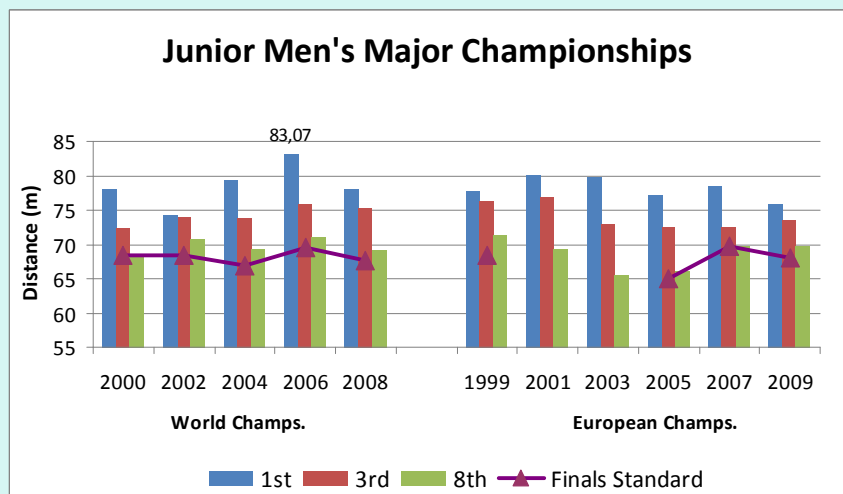
- 6 finalists from 1934 until 1966
- Distance of the winner increased from 45.58m (Lisa Gelius, GER) to 76.32m (Fatima Whitbread, GBR)
- After that distances have been under 70m

Progression in Major Championships



- Performance of the 1st at the Olympic Games always better than at preceding World Championships since 1996 Olympics
- Performance for the 1st position at World Champs following an Olympic year slightly better than at the OG (except for 2009 WC)
- From 1994 EC to 2002 EC the performance of 1st at EC was better than at the preceding WC.

Major Championships – Junior (last 6 yrs.)



Male Junior:

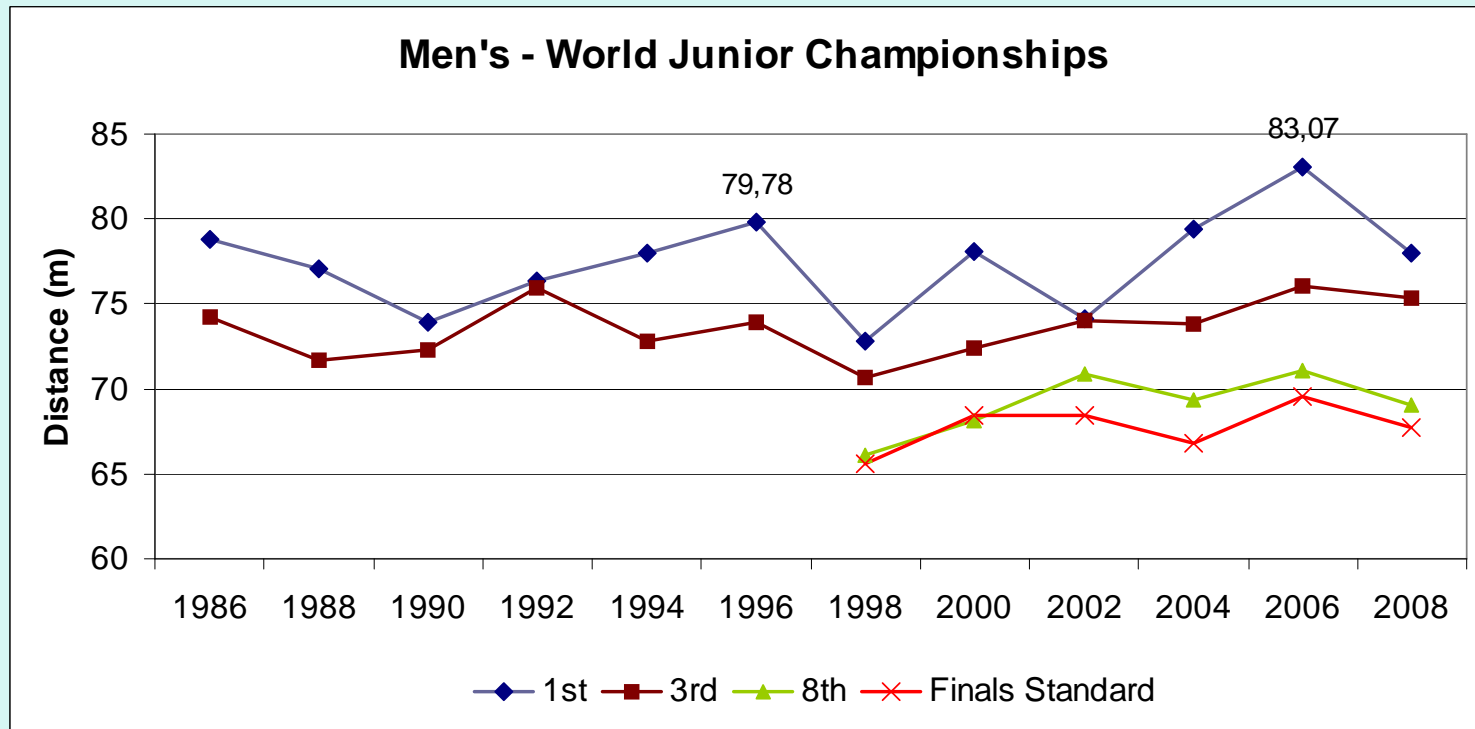
- Results for positions 1st and 3rd in male junior javelin throwers gradually improving at World Championships
- Minimum standard for the final was highest at the 2007 EC with a distance of 69.67m.

Female junior:

- The new specification in 1999 results in a distance drop at the EC
- Overall improvement after that. Highest distance at the 2008 WC (63.01 m)
- EC results for the winner keep improving also in 2009 (60.35 m)

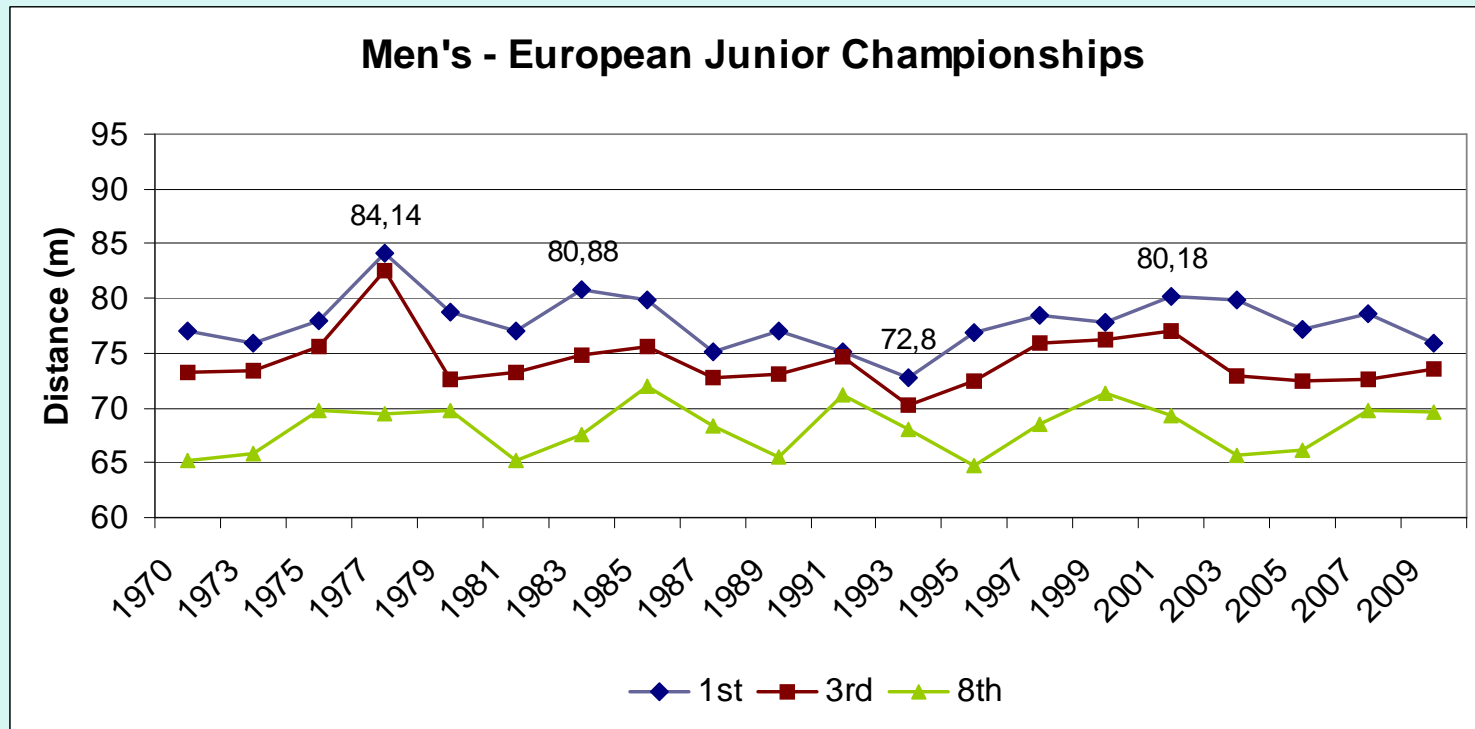
Longer distances thrown in WC

World Junior Championships –Male



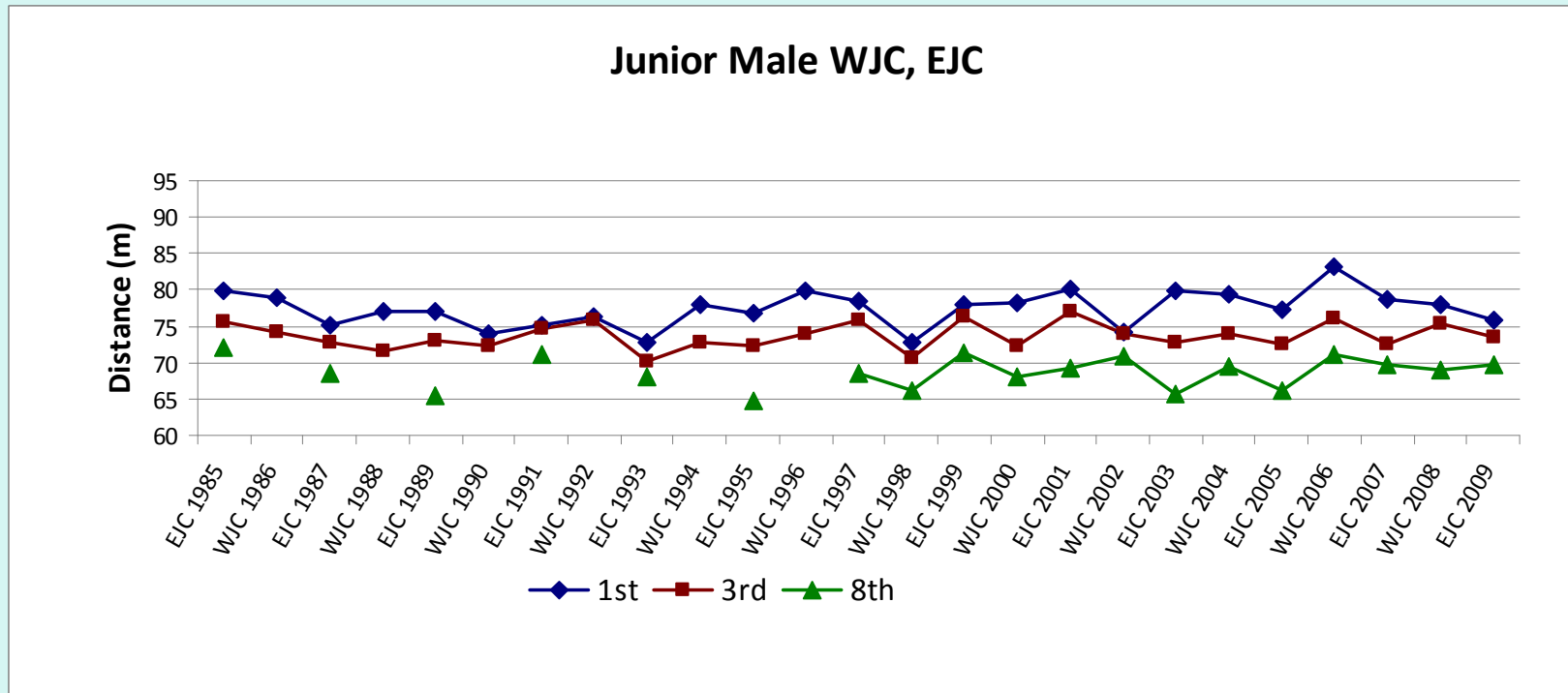
- 12 World Junior Championships to date
- Highest distance thrown in 2006 by John Oosthuizen, RSA (83.07m)
- Lowest distance thrown 72.85m

European Junior Championships –Male



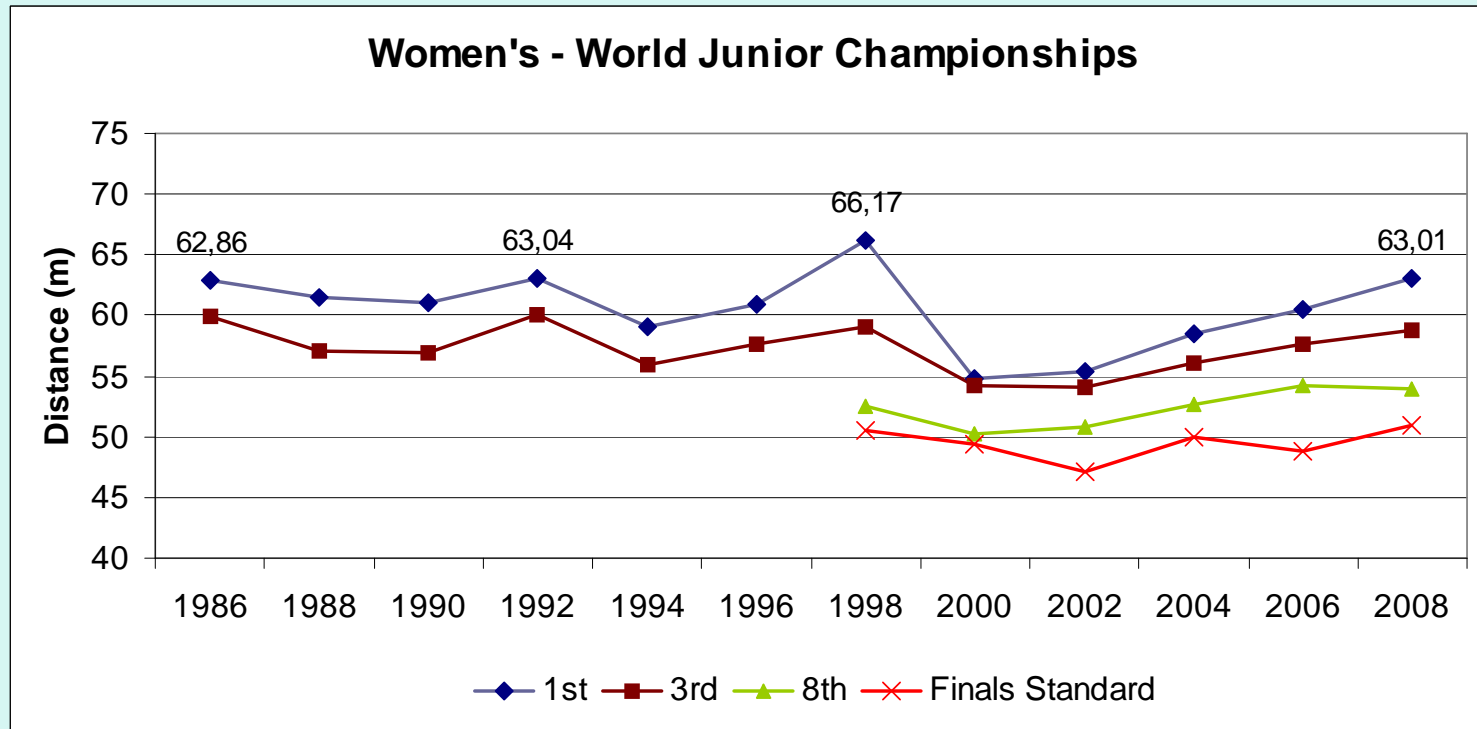
- 20 European Junior Champ.
- Highest distance thrown in 1977 by Klaus Tafelmeier, FRG (84.14m) never reached again.
- Decrease in performance after 1986, however, the 80 m barrier was again reached by Aleksandr Ivanov (RUS).

Progression in Major Junior Championships



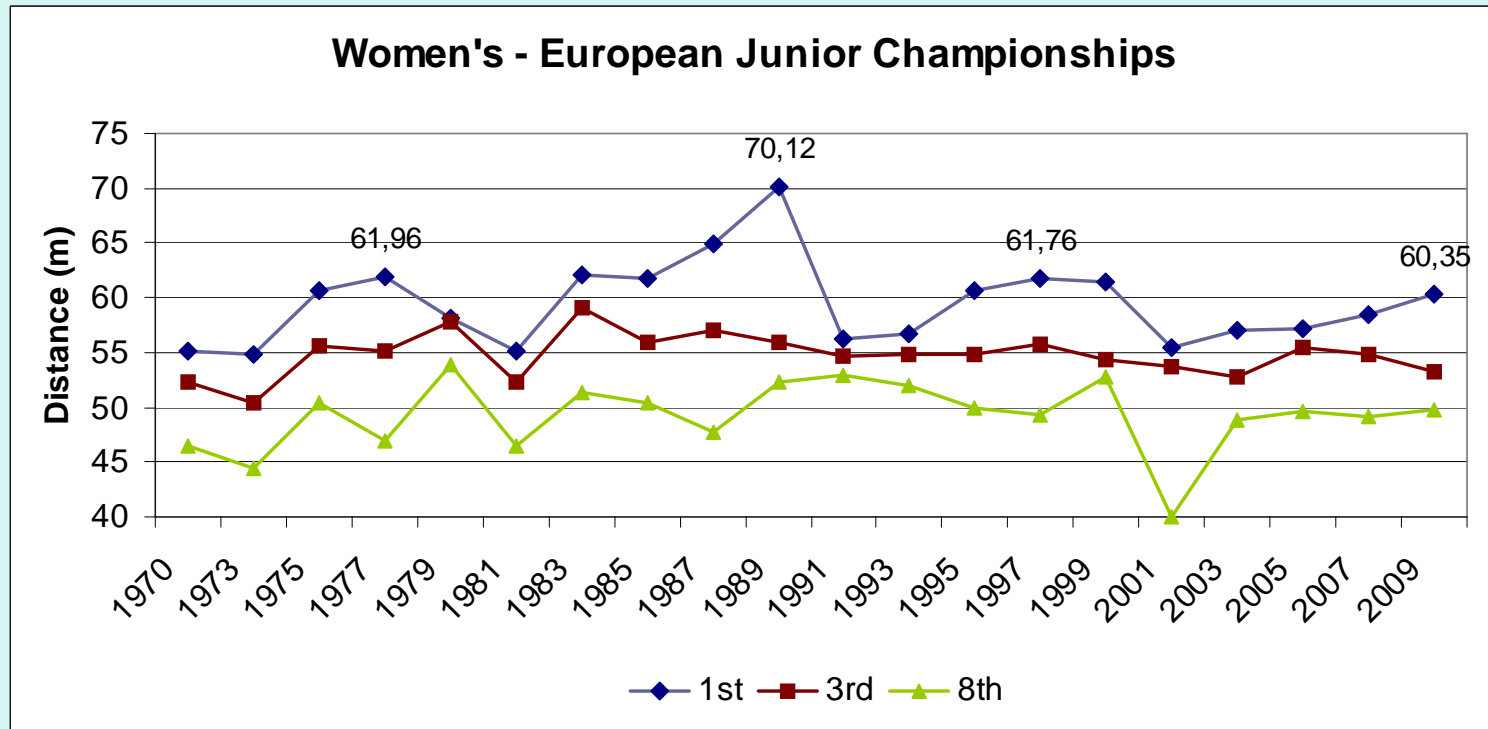
- Results for the 1st position was better at the WC (in relation to EC) during an Olympic year, except for WJC 2004, and WJC 2008
- Best result obtained at a WJC was 83.07m thrown by John Oosthuizen in 2006, while 80.18m is the longest distance thrown at a EJC thrown by Aleksandr Ivanov in 2001.

World Junior Championships –Female



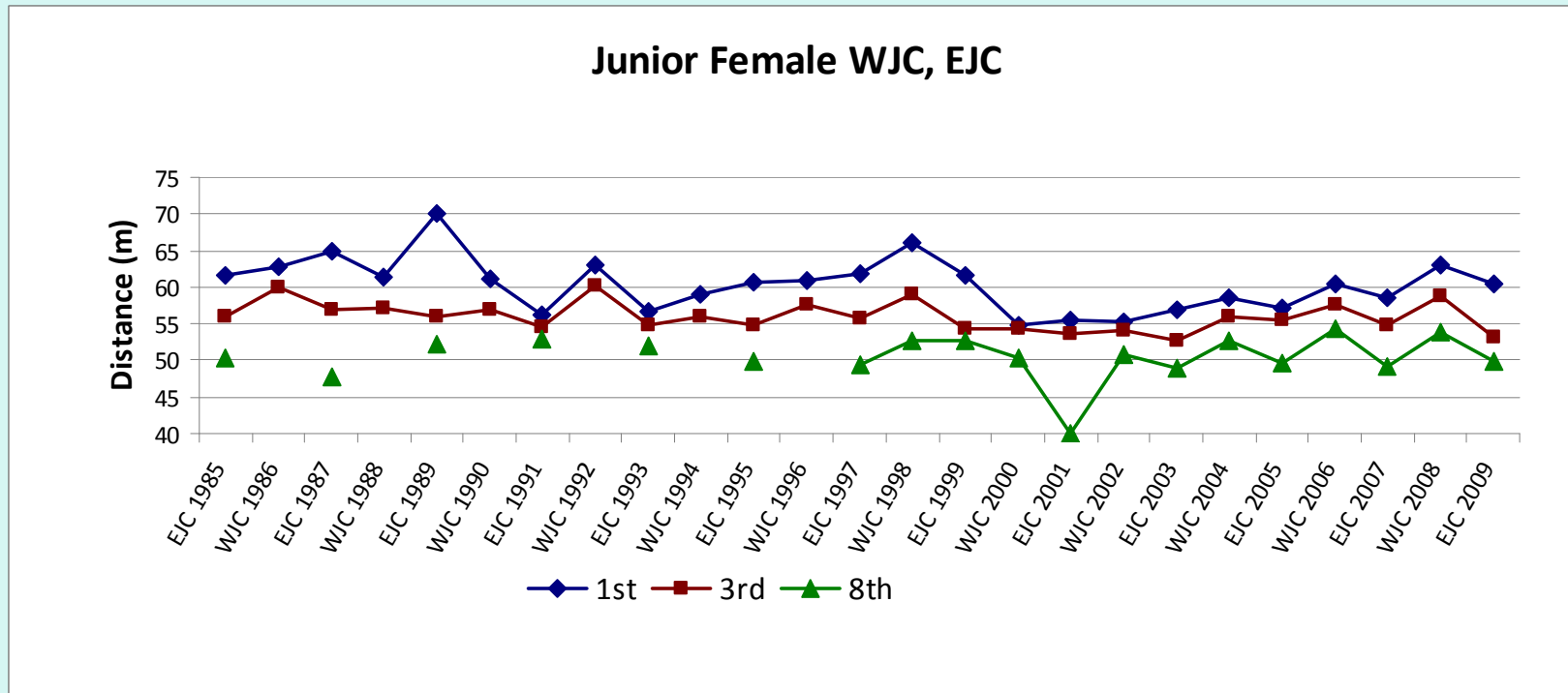
- Sudden drop in performance after 1999 to 54.82m lowest ever for 1st position in a WJC.
- Steady increase until Vira Rebryk (UKR) threw 63.01 m in 2008

European Junior Championships –Female



- Increase in performance until 1989 when Karen Forkel, GDR threw 70.12m
- Dramatic decrease in performance to 56.3m the year after. However, distance of the 1st position continues improving slightly.

Progression in Major Junior Championships



- Drop in performance after 1999.
- Best results obtained at 2008 World Junior Championship (63.01m) while 60.35m (Tatjana Jelaca, SRB) is the best result at 2009 European Junior Championships.
- Results for first position continue to slightly improve since 2000 World Champs.

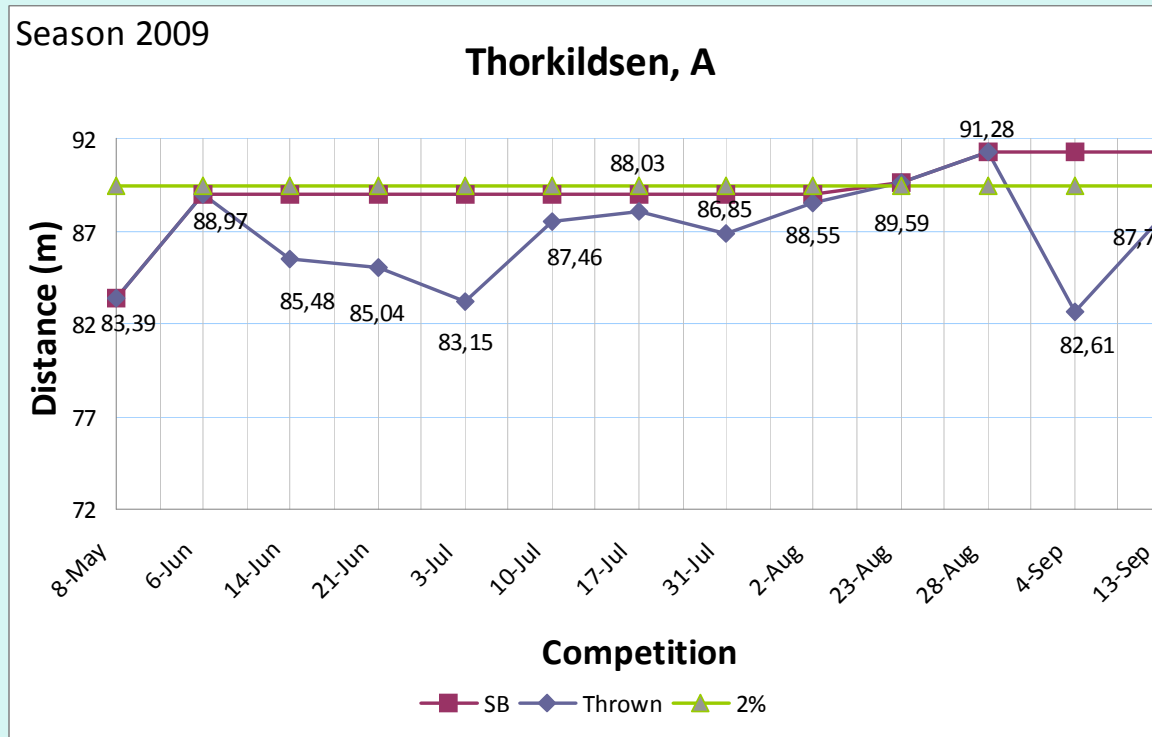
Top Performers (in Season 2009)

■ Ranked in first 8 positions of WBL:

Male

- 1 Thorkildsen, A
- 2 Vasiļevskis, V
- 3 Pitkämäki, T
- 4 Wirkkala, T
- 5 Martínez, G
- 6 Mannio, A
- 7 Ruuskanen, A
- 8 Frydrych P.

Senior Men Top Throwers



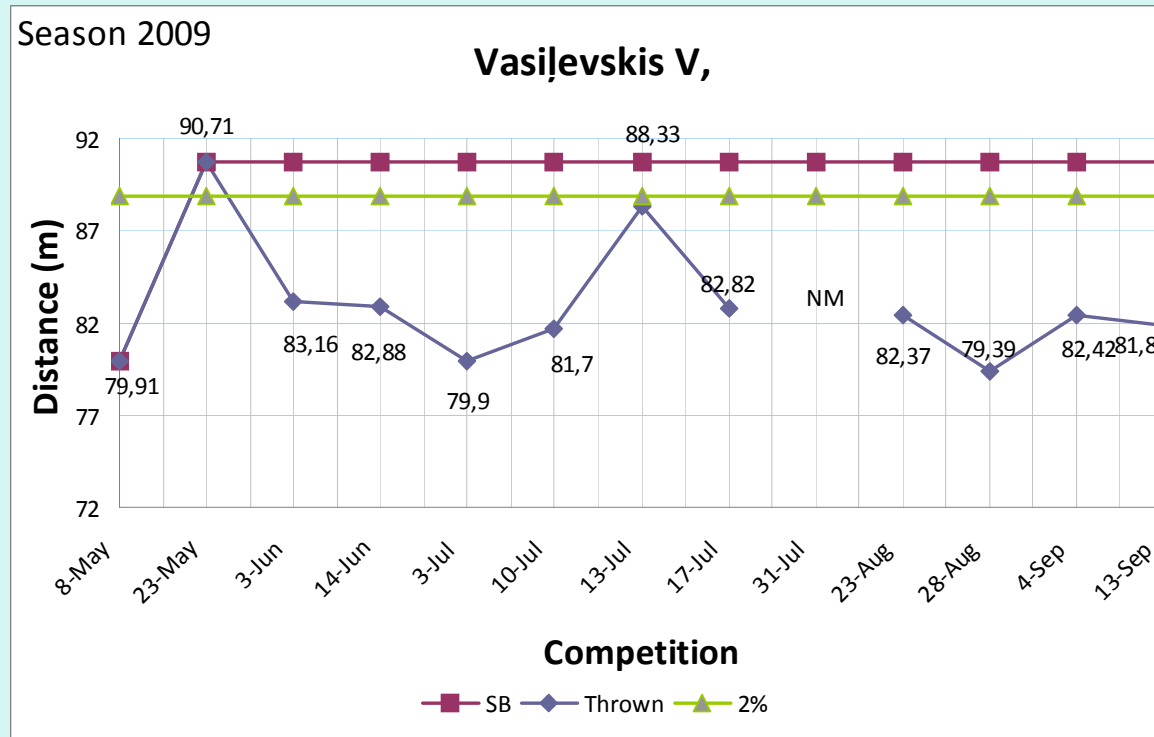
Andreas Thorkildsen:

European Champ 06
Olympic Champ 08
World Champ 09

Rank in WL: 1st
PB: 91.59 (2006)

- After winning the World Championship (89.59m), Andreas Thorkildsen threw his SB in Zürich 91.28 m.
- He has improved 2% of his SB in 4 competitions
- Difference between best and worst throw: 8.67 m

Senior Men Top Throwers



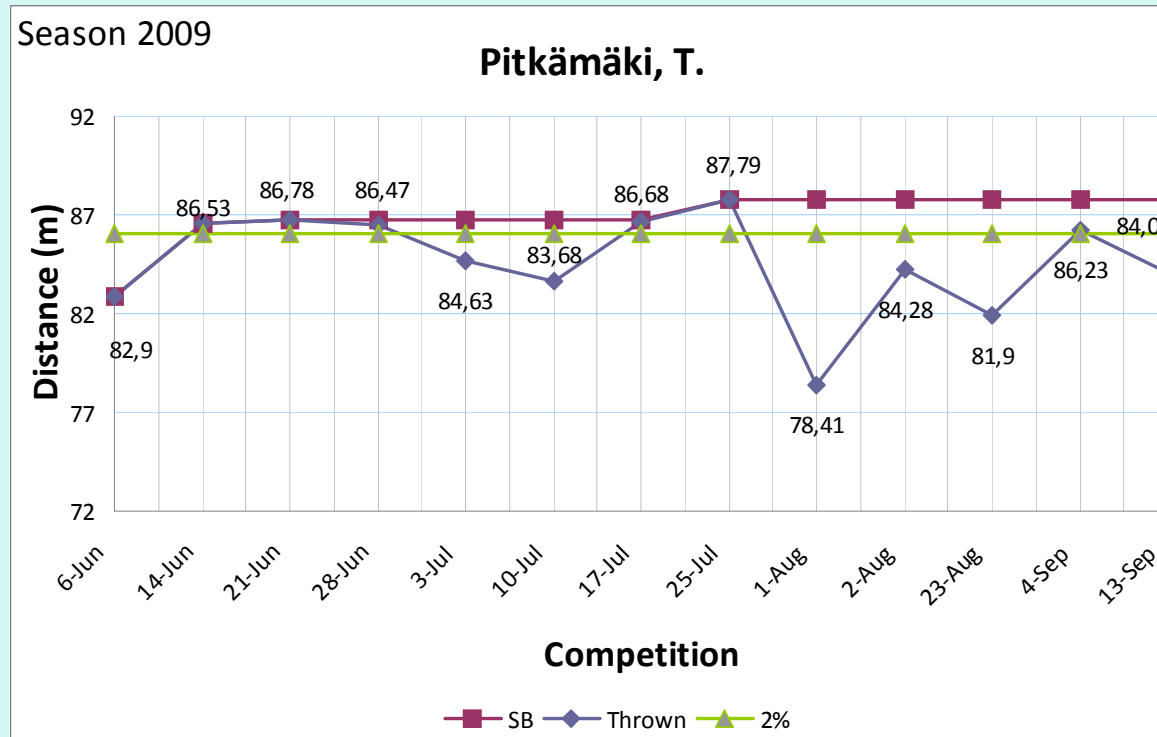
Vadims Vasiļevskis:

PB: 90.73 m (2007)

Rank in WL: 2nd

- SB: 90.71 m in Valmiera, Latvia (23 May)
- Only once he has thrown within 2% of his SB this season

Senior Men Top Throwers



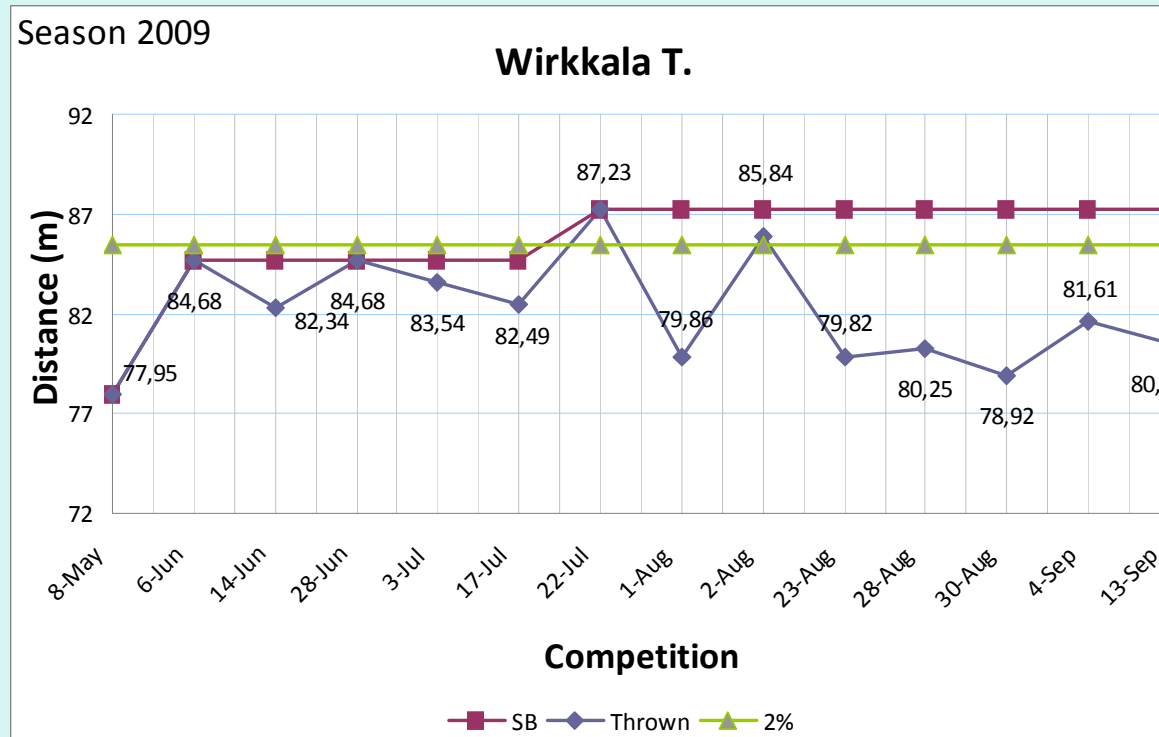
Tero Pitkämäki:

PB: 91.53 (2005)

Rank in WL: 3rd

- SB: 87.79 m in Lapinlahti, Finland
- Quite consistent performance. Five times throwing within 2% of his SB
- Finished 5th at the Berlin WC (81.9m)

Senior Men Top Throwers



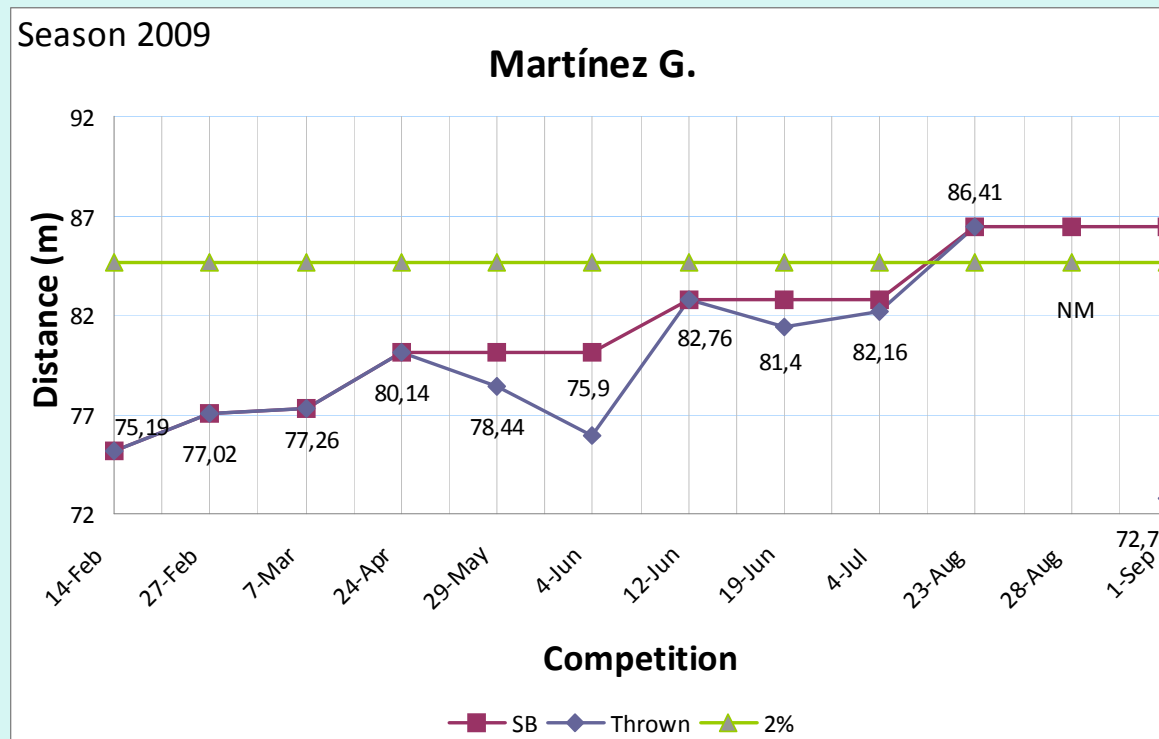
Teemu Wirkkala:

PB: 87.23 m (2009)

Rank in WL: 4th

- SB and PB of 87.23m in Joensuu, Finland
- Three times within 2% of his SB
- Finished 9th at the Berlin WC (79.29m)

Senior Men Top Throwers



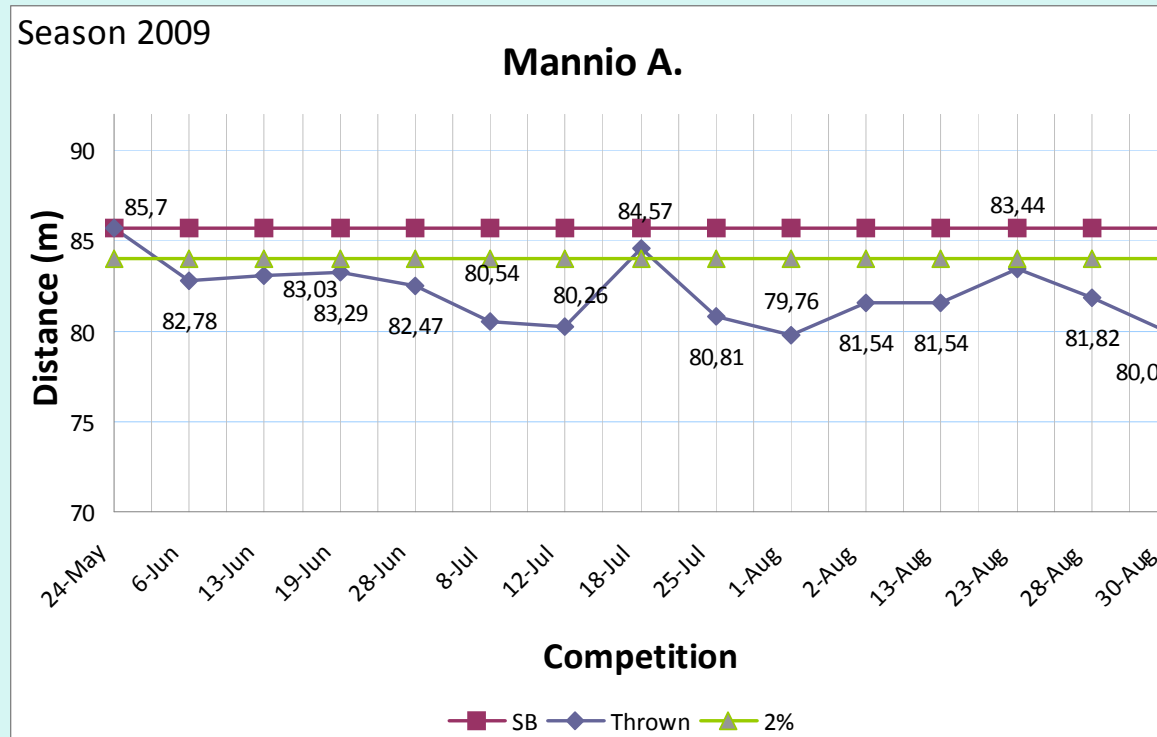
Guillermo Martínez:

PB: 87.17m (2006)

Rank in WL: 5th

- SB of 86.41 m at Berlin World Champs, finishing second.
- Performance dropped after WC considerably. He also competed in high jump in 2008

Senior Men Top Throwers



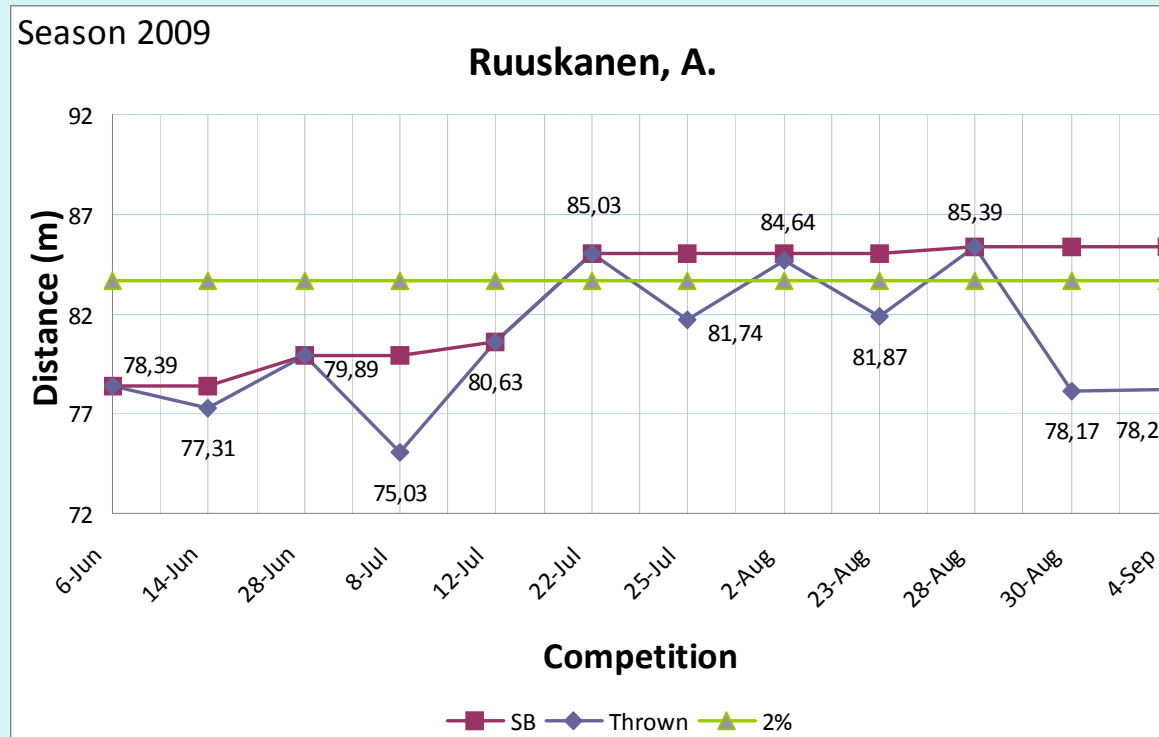
Ari Mannio:

PB: 85.7 (2009)

Rank in WL: 6th

- SB and PB thrown in Leppävirta, Finland at beginning of season
- Threw 83.44 in Pori, Finland
- Difference between best and worst throw 5.94 m (the smallest in top throwers)

Senior Men Top Throwers



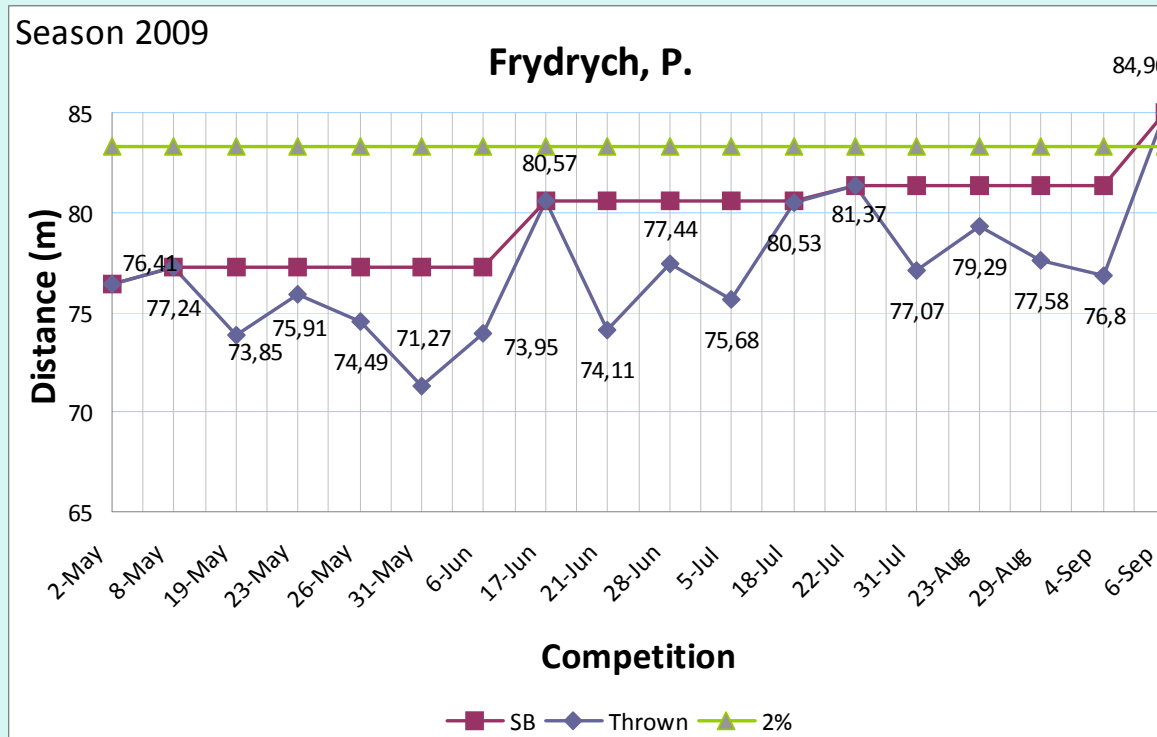
Antti Ruuskanen:

PB: 87.33 (2008)

Rank in WL: 7th

- SB of 85.39 in Zürich
- Three times within 2% of his SB
- Finished 6th at the WC in Berlin (81.87 m)

Senior Men Top Throwers



Petr Frydrych:

PB: 84.96 (2009)

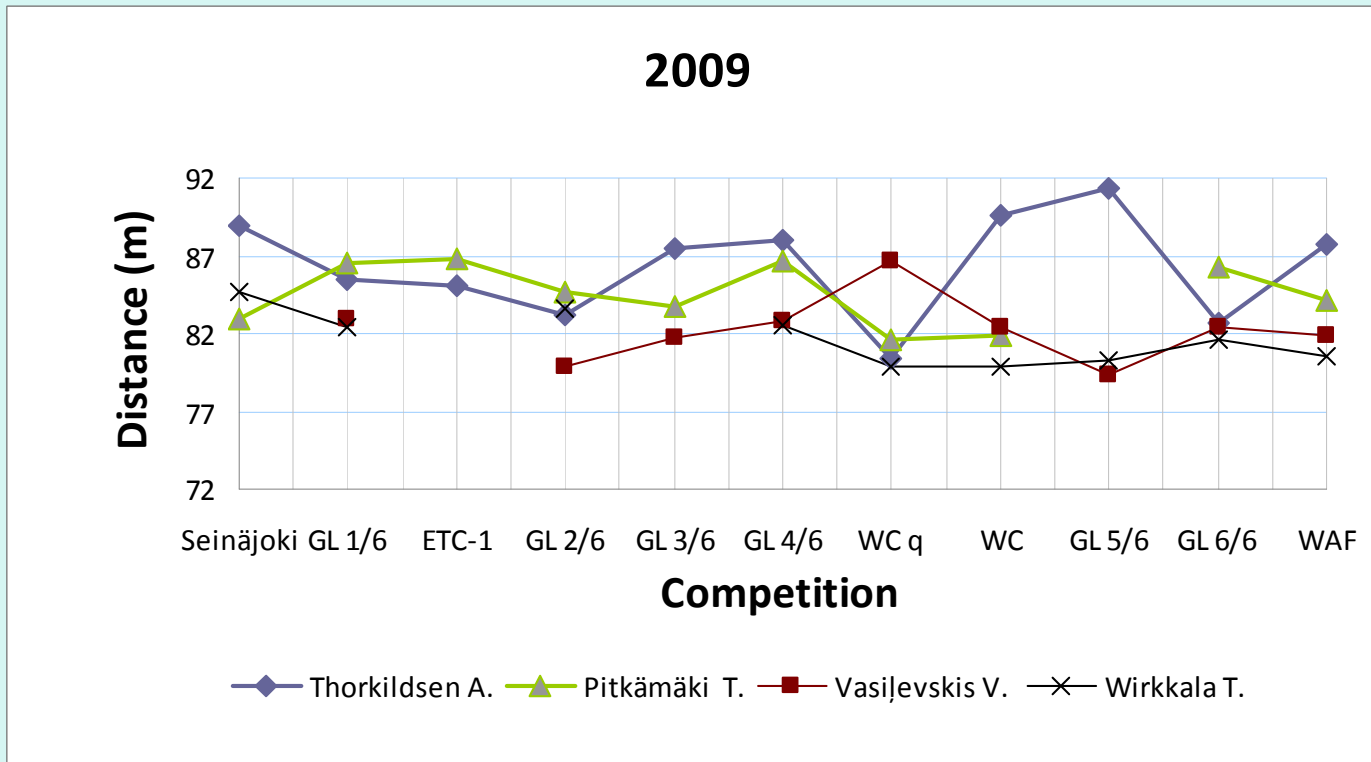
Rank in WL: 8th

- SB and PB of 84.96 thrown in Plzen (Czech Rep.)
- Finished 10th at the WC in Berlin (79.29 m)

Top Men's within-individual Performance

- Taken best 10 throws
- All PBs thrown in athletes' home country, except for G. Martinez (Cuba) who threw 87.17m in Paris Saint-Dennis.
- PB thrown at ages ranging from 21 to 25 (mean: 23.5 ± 1.6 yrs.), with 3 athletes (Vasilevskis, Wirkkala, and Martinez) throwing their PB at age 25. Pitkämäki, youngest in throwing PB at age 22 also Mannio and Frydrych (currently 21 and 22 yrs.) with a PB achieved this year.
- Athletes have thrown most of the best 10 throws when they were 24 (4 throwers) or 25 (2) years of age.

Seasonal Progress

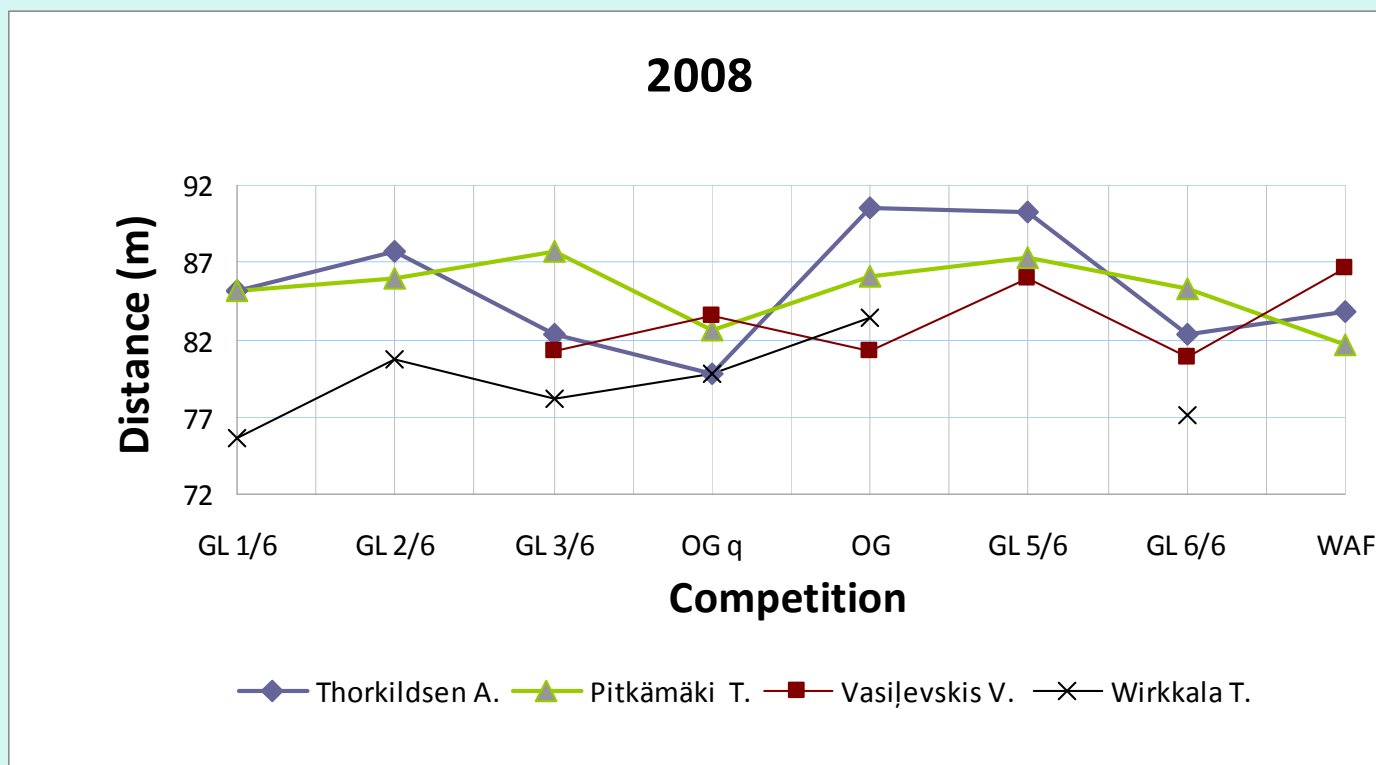


WL Ranking:

- 1 Thorkildsen
- 2 Vasiļevskis
- 3 Pitkämäki
- 4 Wirkkala

This year, Thorkildsen has finished in 1st position in six occasions, whereas Pitkämäki has won in 4 events. Thorkildsen got gold in the Berlin WC, while Vasiļevskis was 4th, Pitkämäki 5th and Wirkkala 9th (Martinez was silver, and Murakami was bronze).

Seasonal Progress

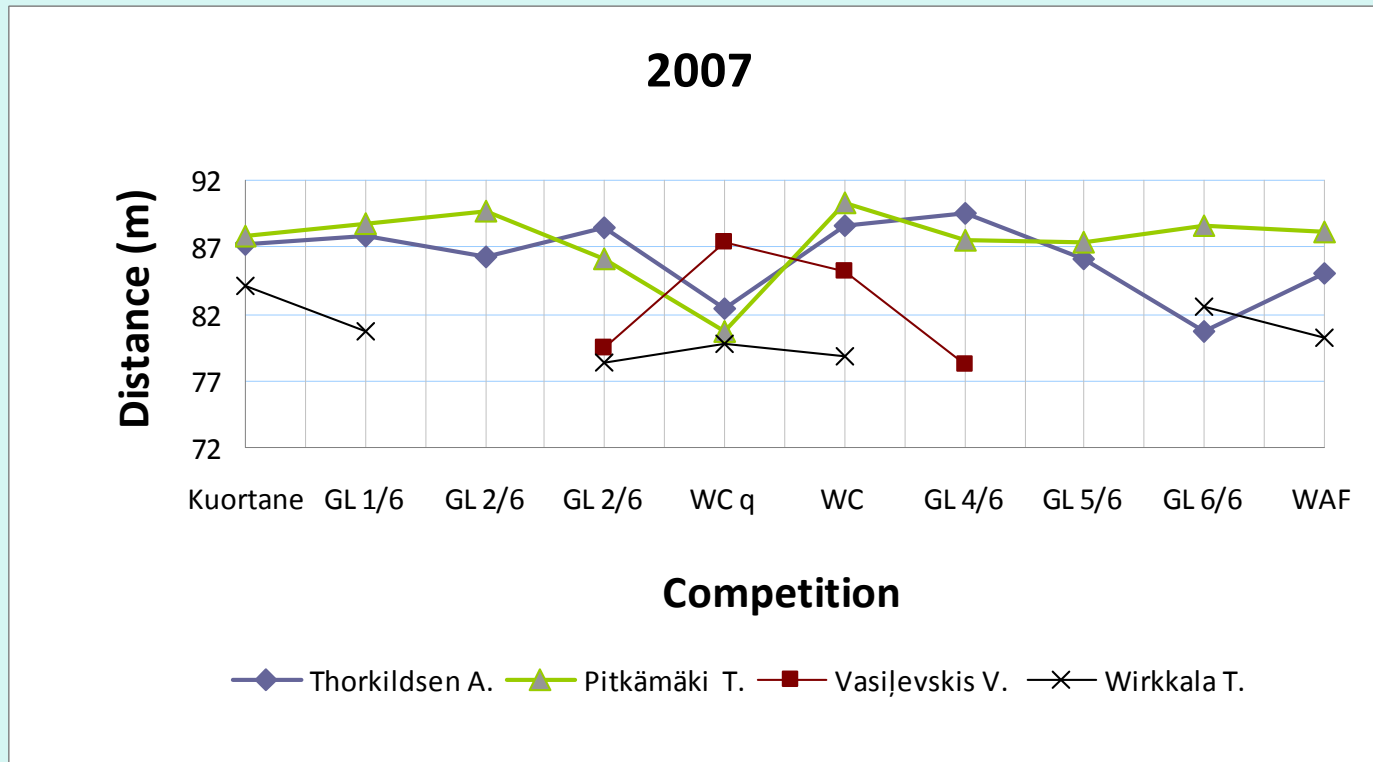


WL Ranking:

- 1 Thorkildsen
- 3 Pitkämäki
- 8 Vasiļevskis
- 13 Wirkkala

In 2008, Thorkildsen finished 1st in 3 occasions as did Pitkämäki. Vasiļevskis qualified 1st for Beijing Olympics, however he ended in 9th position. Thorkildsen won the gold, Kovals was silver and Pitkämäki the bronze, while Wirkkala got the 5th place.

Seasonal Progress

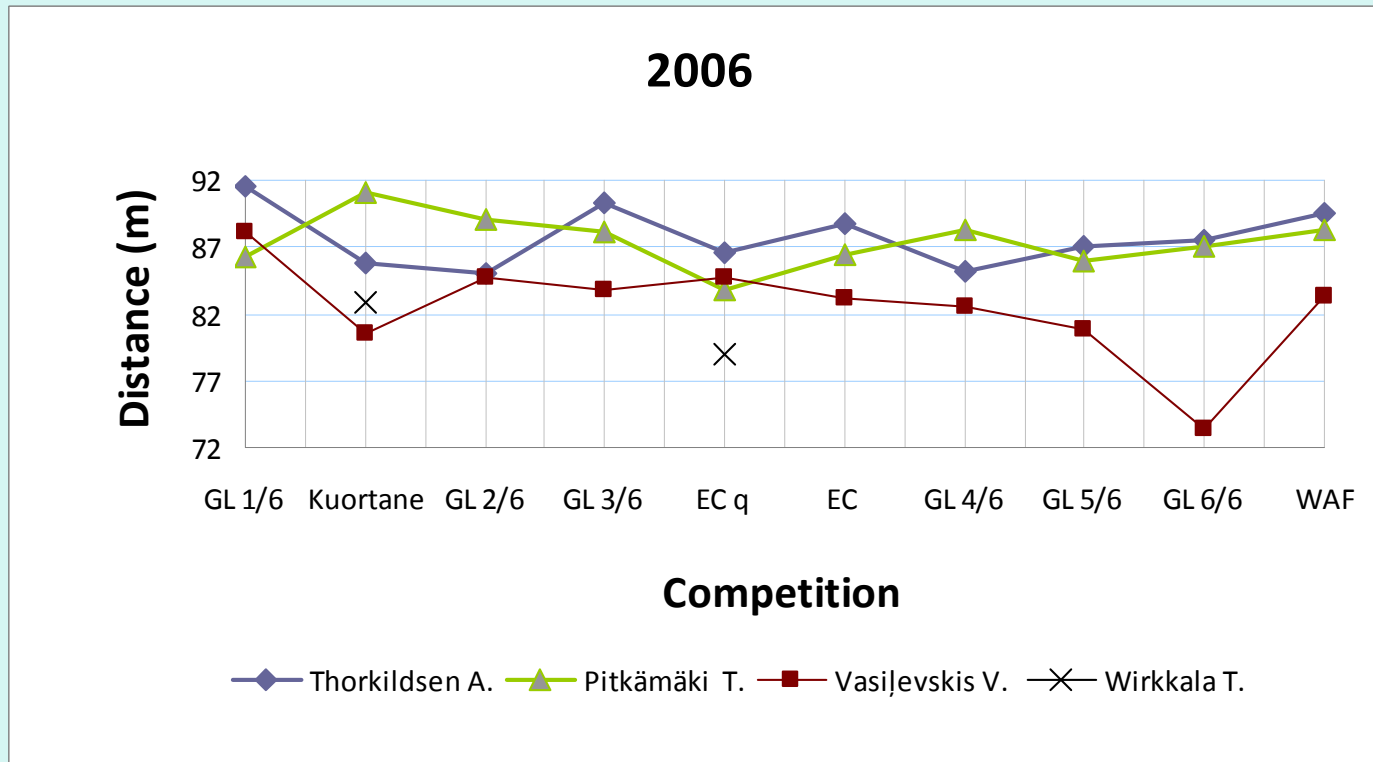


WL Ranking:

- 2 Pitkämäki
- 3 Vasiļevskis
- 4 Thorkildsen
- 11 Wirkkala

In 2007, it was Pitkämäki who finished in first position in 7 occasions, against 2 first positions of Thorkildsen. At the Osaka WC, Pitkämäki was 1st, Thorkildsen 2nd, Vasiļevskis was 4th, and Wirkkala 12th.

Seasonal Progress



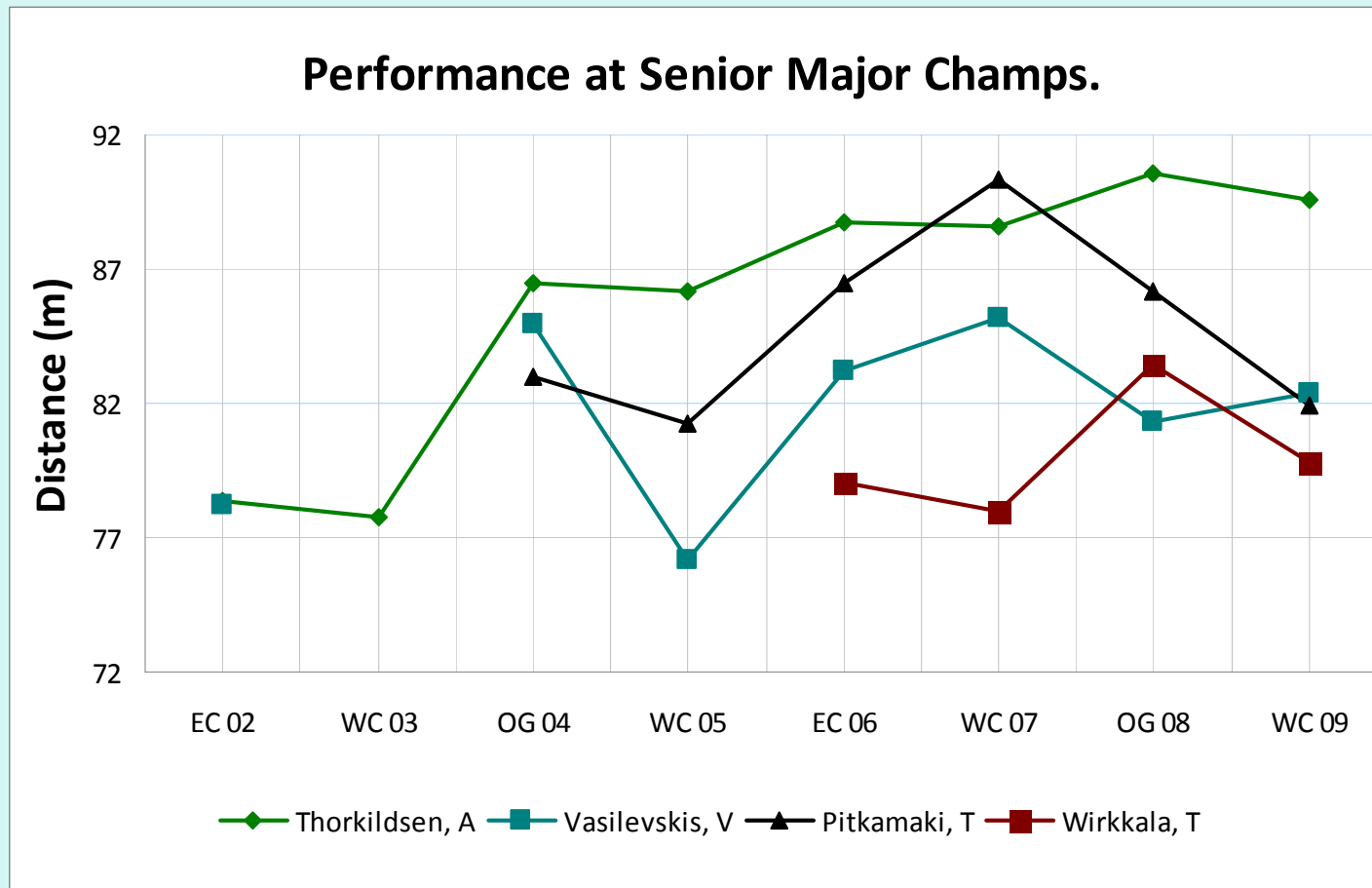
WL Ranking:

- 1 Thorkildsen
- 2 Pitkämäki
- 3 Vasiļevskis
- 22 Wirkkala

In 2006, Thorkildsen finished in first position in 7 occasions (including the qualifying for the EC), whereas Pitkämäki was first in the remaining 3 events they all competed.

As for the EC Thorkildsen was first, Pitkämäki second, Vasiļevskis fourth and Wirkkala who participated in two events with all three, failed to qualify.

Performance at Major Championships



Male Top throwers (over the years)

- Based on their positions in Top Lists

- Jan Zelezny (CZE)
- Janis Lulis (SU)
- Steve Backley (GBR)
- Janusz Sidlo (POL)
- Vladimir Kuznyetsov (SU)
- Pauli Nevala (FIN)
- Sergey Makarov (RUS)
- Andreas Thorkildsen (NOR)
- Hannu Siitonen (FIN)
- Aki Parviainen (FIN)

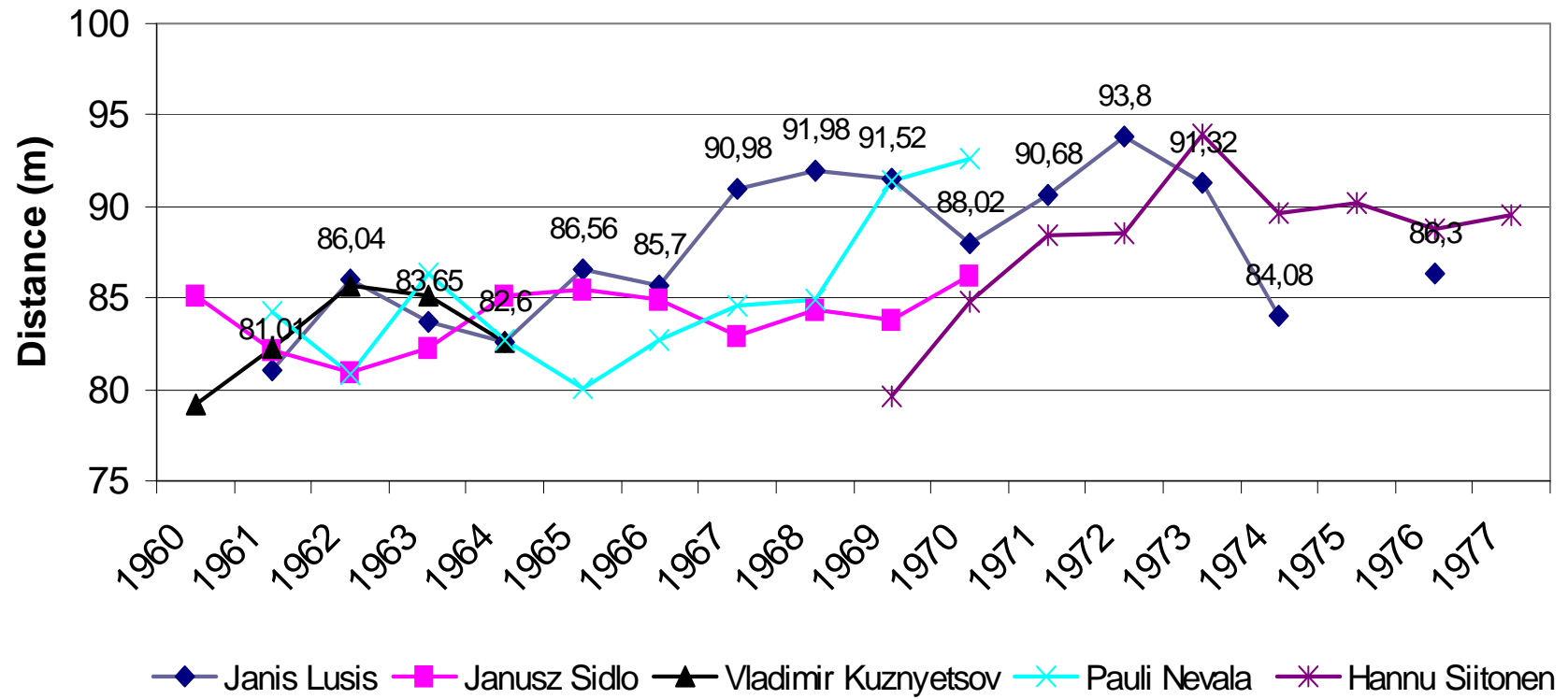
Male Top throwers

	Begin	age	End	age	Years in WBL	M	SD
Jan Zelezny (CZE)	1986	20	2006	40	20	89,7	4,2
Janis Lulis (SU)*	1961	22	1976	35	15	87,6	3,9
Steve Backley (GBR)	1989	20	2004	35	16	88,2	2,5
Janusz Sidlo (POL)*	1960	27	1970	37	11	83,9	1,7
Vladimir Kuznyetsov (SU)*	1960	29	1964	33	5	83	2,6
Pauli Nevala (FIN)*	1961	20	1970	29	10	85	4,1
Sergey Makarov (RUS)*	1994	21	2009	36	16	87,8	2,6
Andreas Thorkildsen (NOR)	2001	19	2009	27	9	88	3,2
Hannu Siitonen (FIN)*	1969	20	1977	28	8	88	4,2
Aki Parviainen (FIN)	1992	23	2005	30	12	86,2	4,8

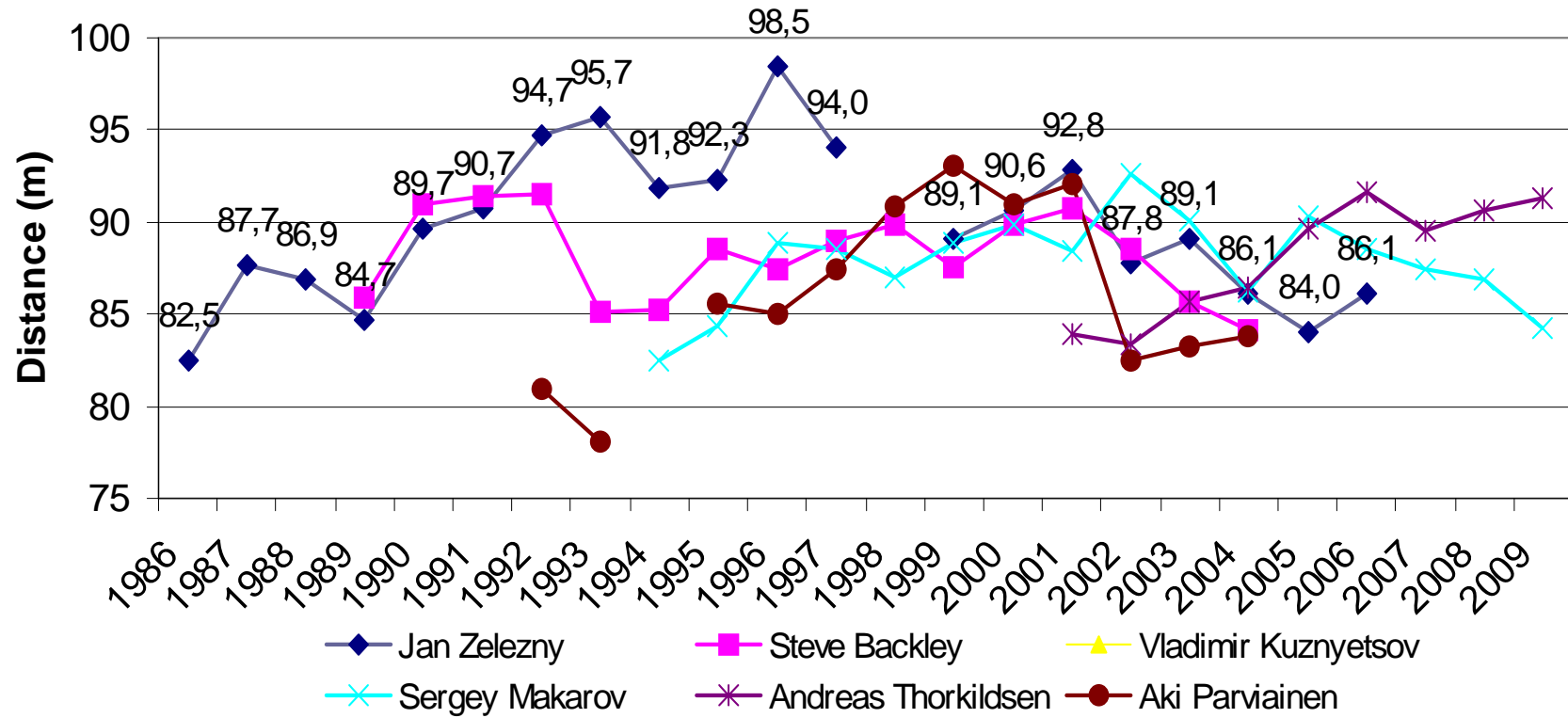
If we only consider the New Model

Boris Henry (GER)	1993	19	2004	30	10	87,14
Aleksandr Ivanov (RUS)*	2003	21	2009	26	16	85,84
Raymond Hecht (GER)	1990	21	2004	35	9	87,68
Tero Pitkämäki (FIN)*	2003	20	2009	26	9	87,78
Seppo Rätty (FIN)	1986	24	1997	35	7	86,23

Career Progression Old Model



Career Progression New Model



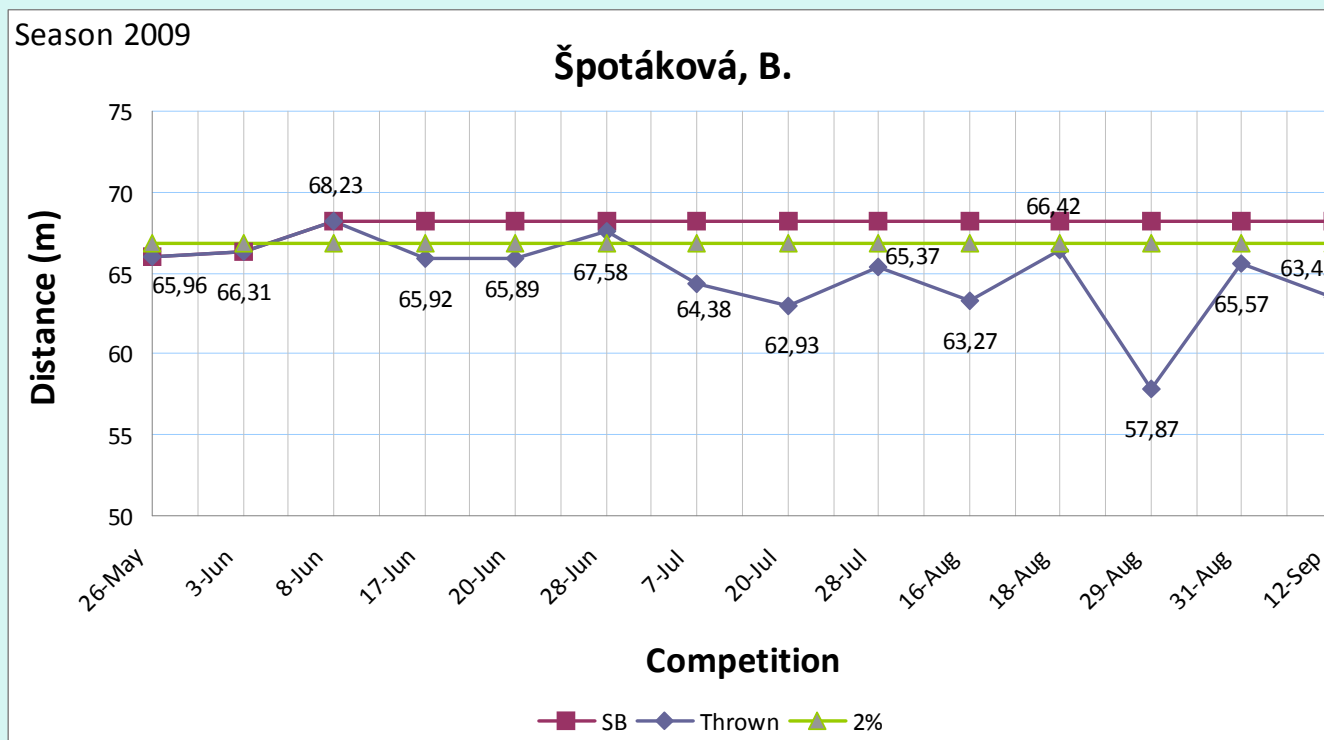
Top Performers (in Season 2009)

■ Ranked in first 8 positions of WBL:

Female

- 1 Abakumova M,
- 2 Obergföll C,
- 3 Špotáková B,
- 4 Nerius S,
- 5 Viljoen S,
- 6 Palameika M,
- 7 Stoian M,
- 8 Patterson K,

Senior Women Top Throwers



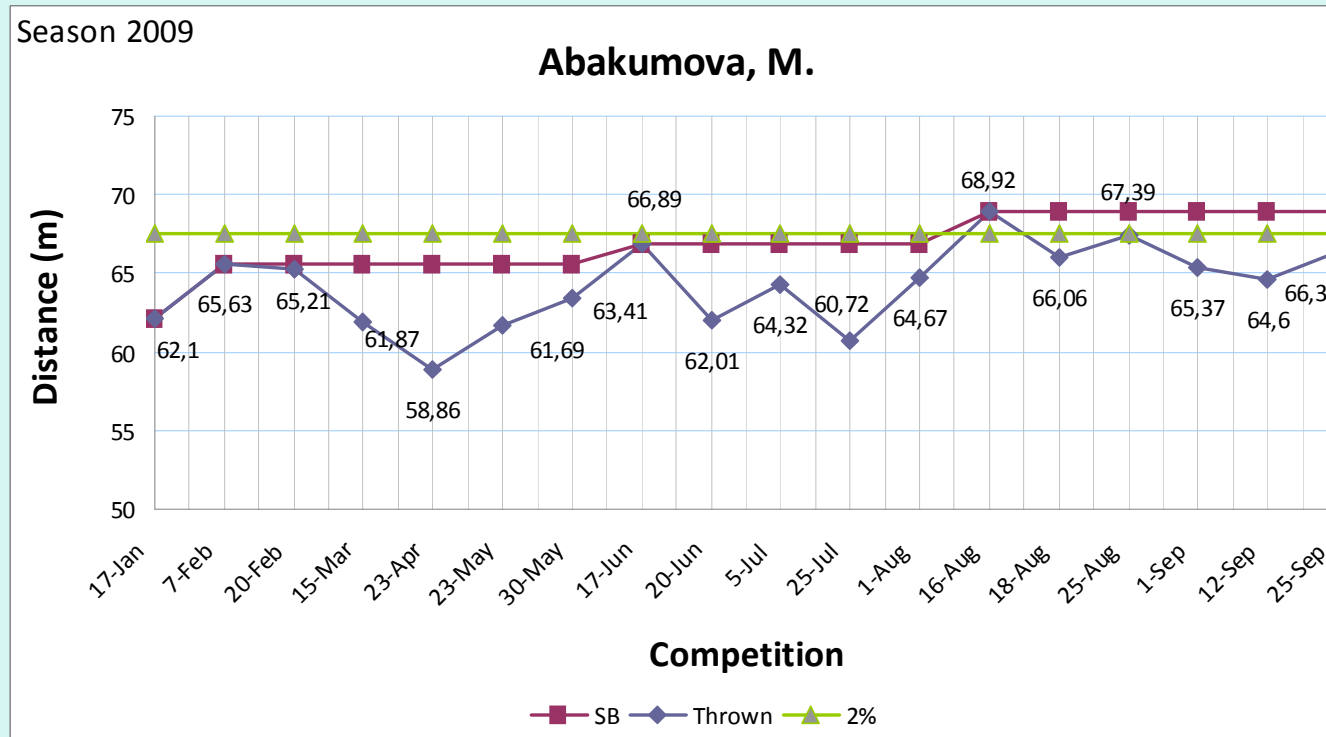
Špotáková B:

PB: 72.28m (2008)

Rank in WL: 1th

- World record holder
- SB of 68.23 m, in Praha
- Finished second at the WC in Berlin (66.42 m)

Senior Women Top Throwers



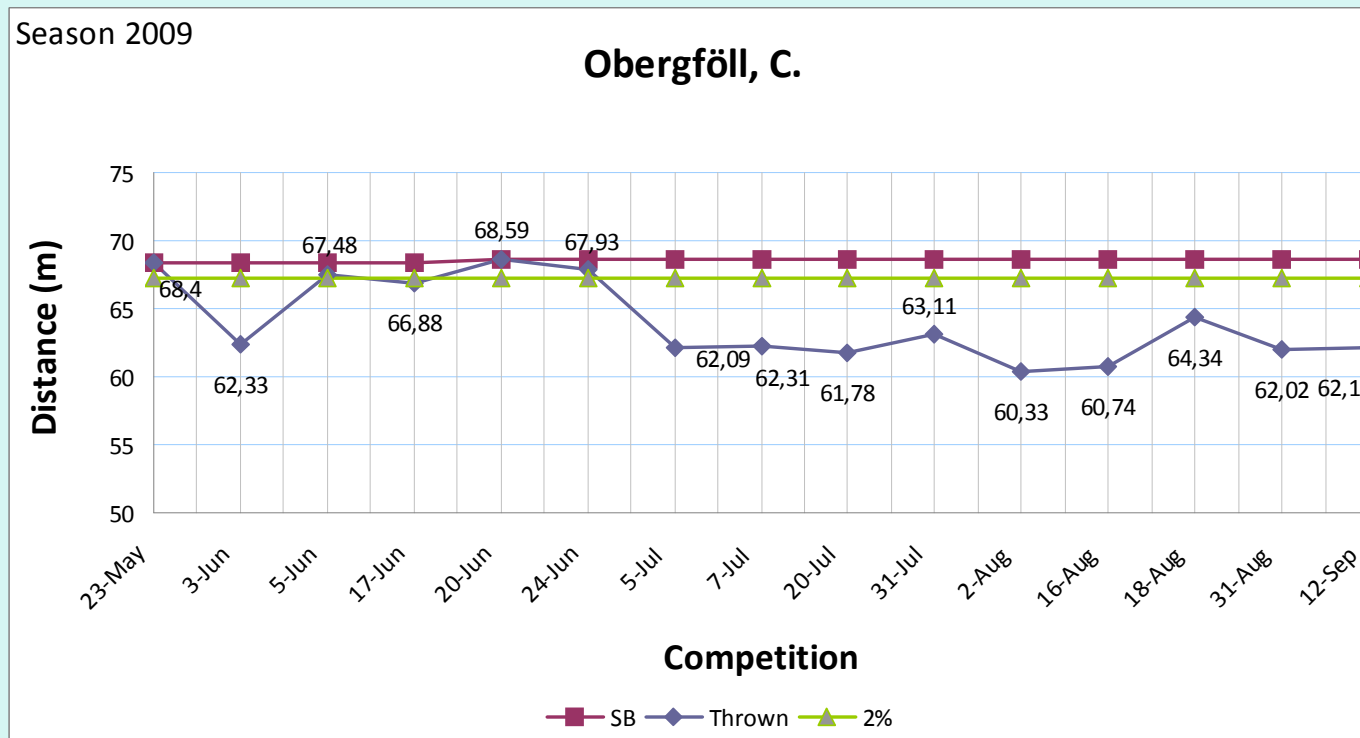
Abakumova M:

PB: 70.78m (2008)

Rank in WL: 2th

- SB of 68.92 m in Berlin, what got her the bronze medal

Senior Women Top Throwers



Obergföll C:

PB: 70.20m (2007)

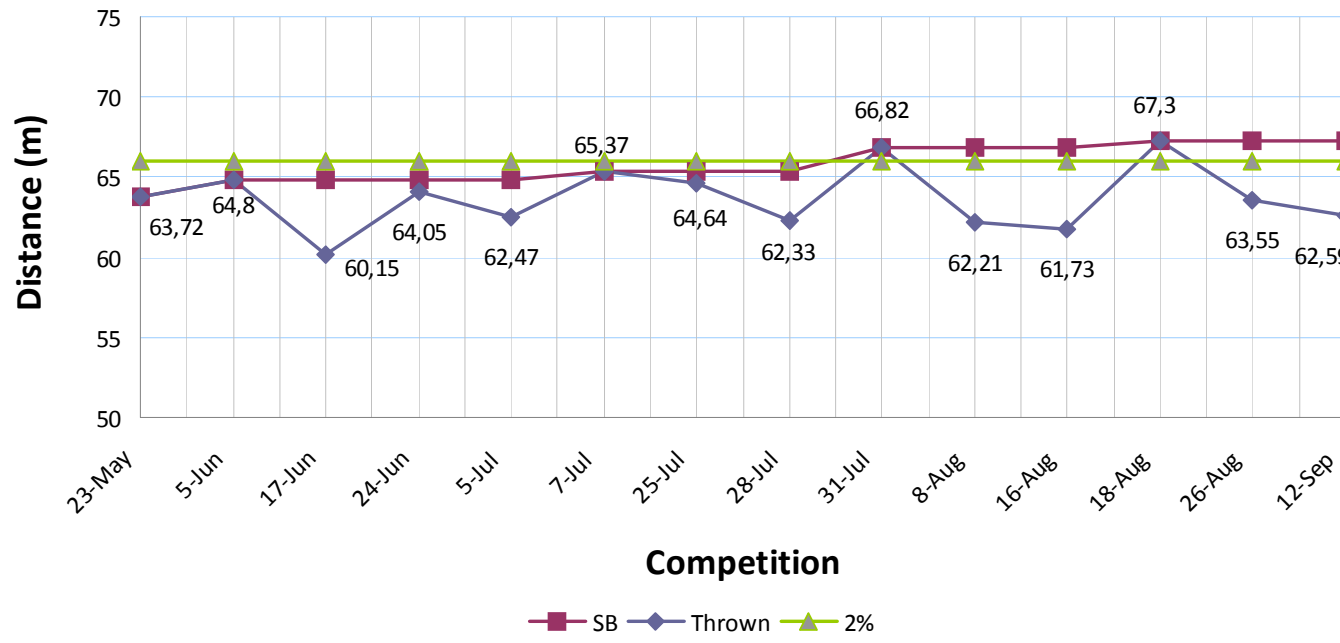
Rank in WL: 3th

- SB of 68.59
- Got the gold medal at the WC in Berlin with a first throw of 67.30 m

Senior Women Top Throwers

Season 2009

Nerius, S.



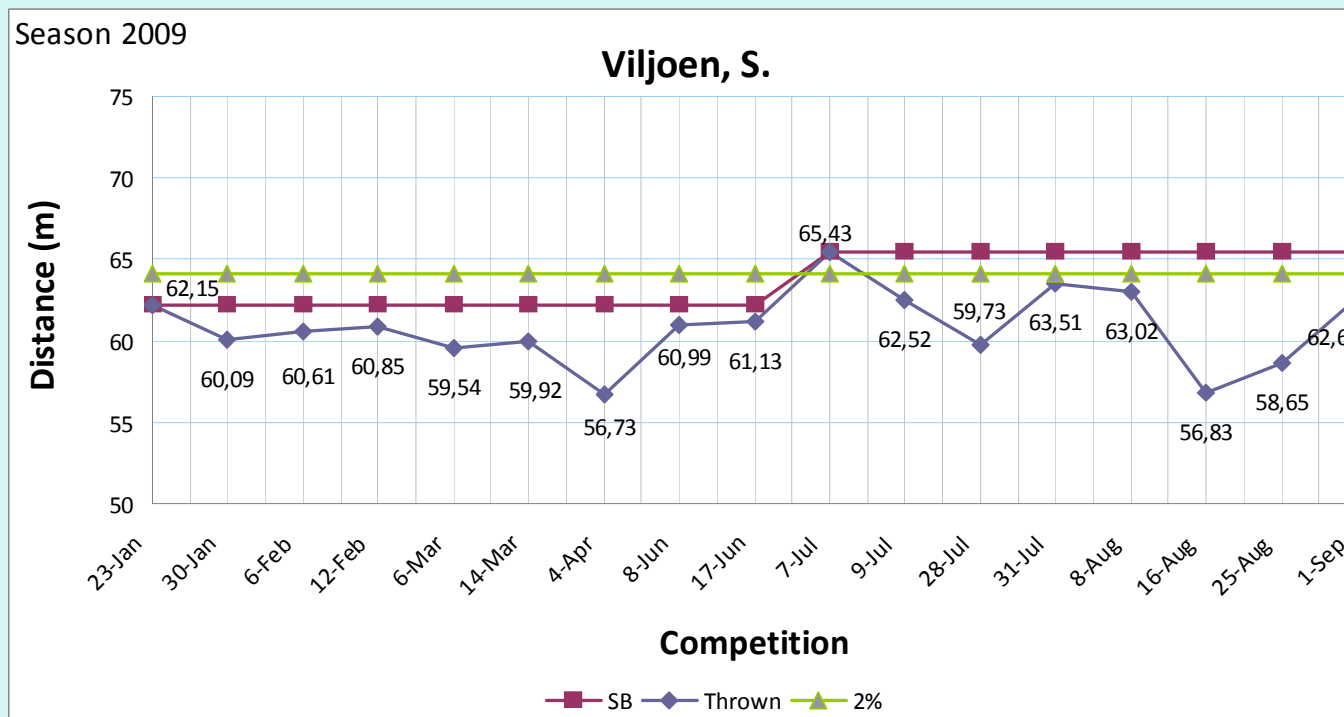
Nerius S:

PB: 68.34m (2008)

Rank in WL: 4th

- SB of 67.30 m in Berlin what got her the gold medal
- Season ended with a throw of 62.59 m at the WAF in Thessaloniki finishing 3rd.
- A difference of 7.15m between best and worst throw this season, lowest among the top 8 throwers.

Senior Women Top Throwers



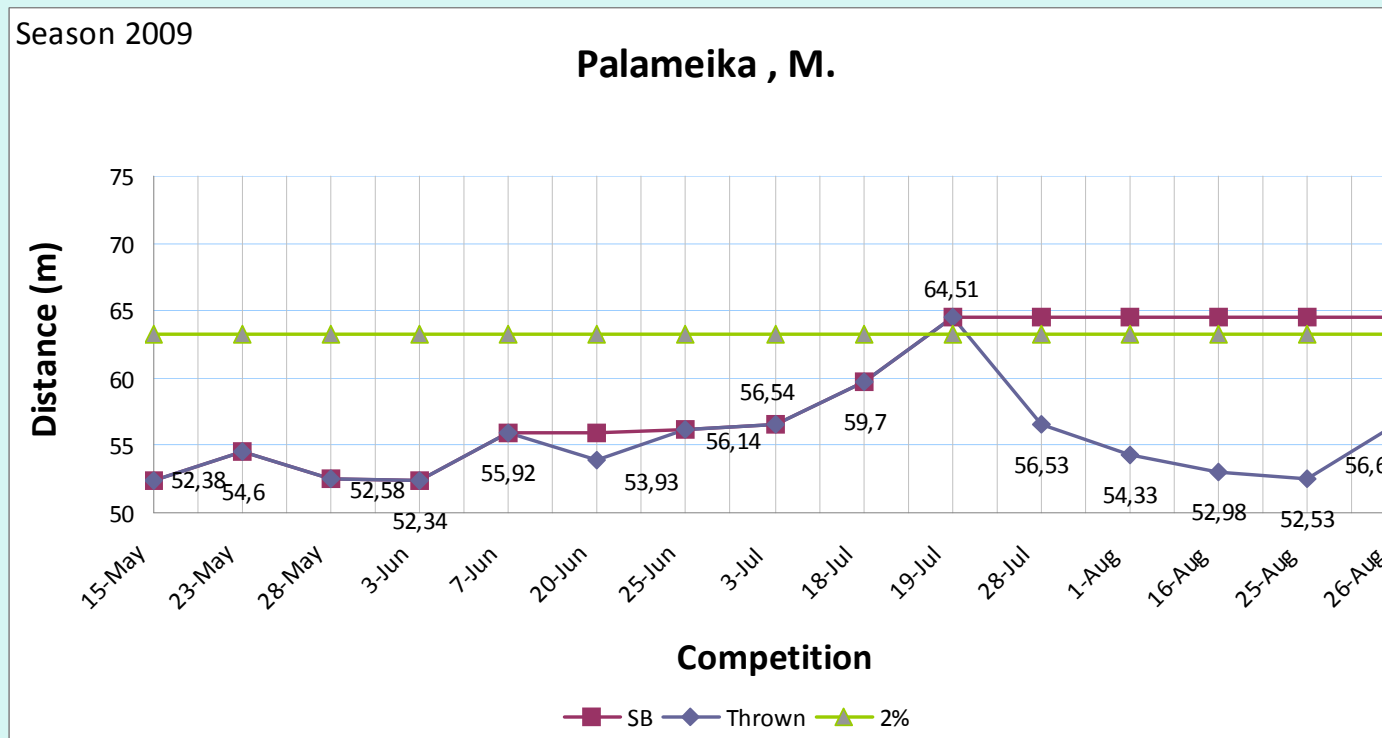
Viljoen S:

PB: 65.43m (2009)

Rank in WL: 5th

- PB and SB of 65.43m in Beograd (July 7th)
- Qualified in 8th position at the WC in Berlin

Senior Women Top Throwers

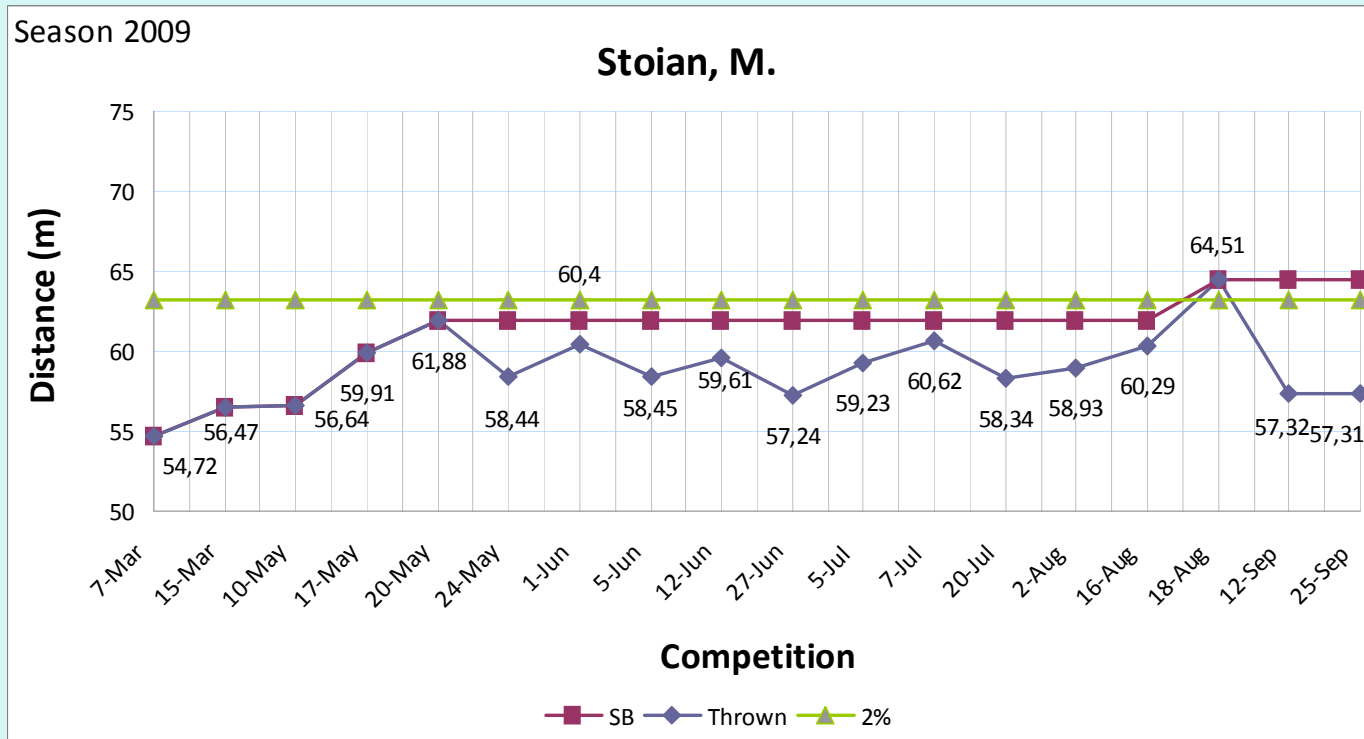


Palameika M:

Rank in WL: 6th

- SB and PB (64.51m) thrown in Kaunas (Finland) this year

Senior Women Top Throwers

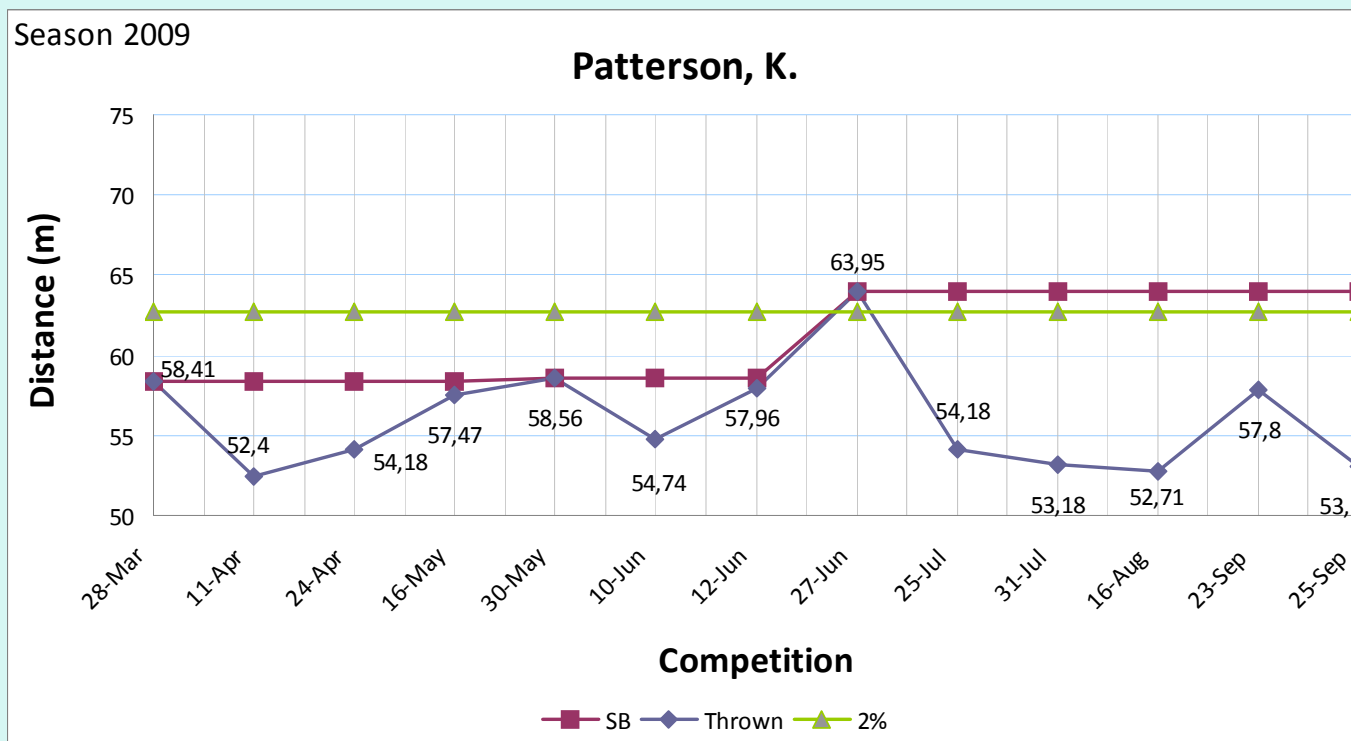


Stoian M:

Rank in WL: 8th

- PB and SB thrown at the WC in Berlin (64.51m) this year. She finished fourth

Senior Women Top Throwers



Špotáková B:

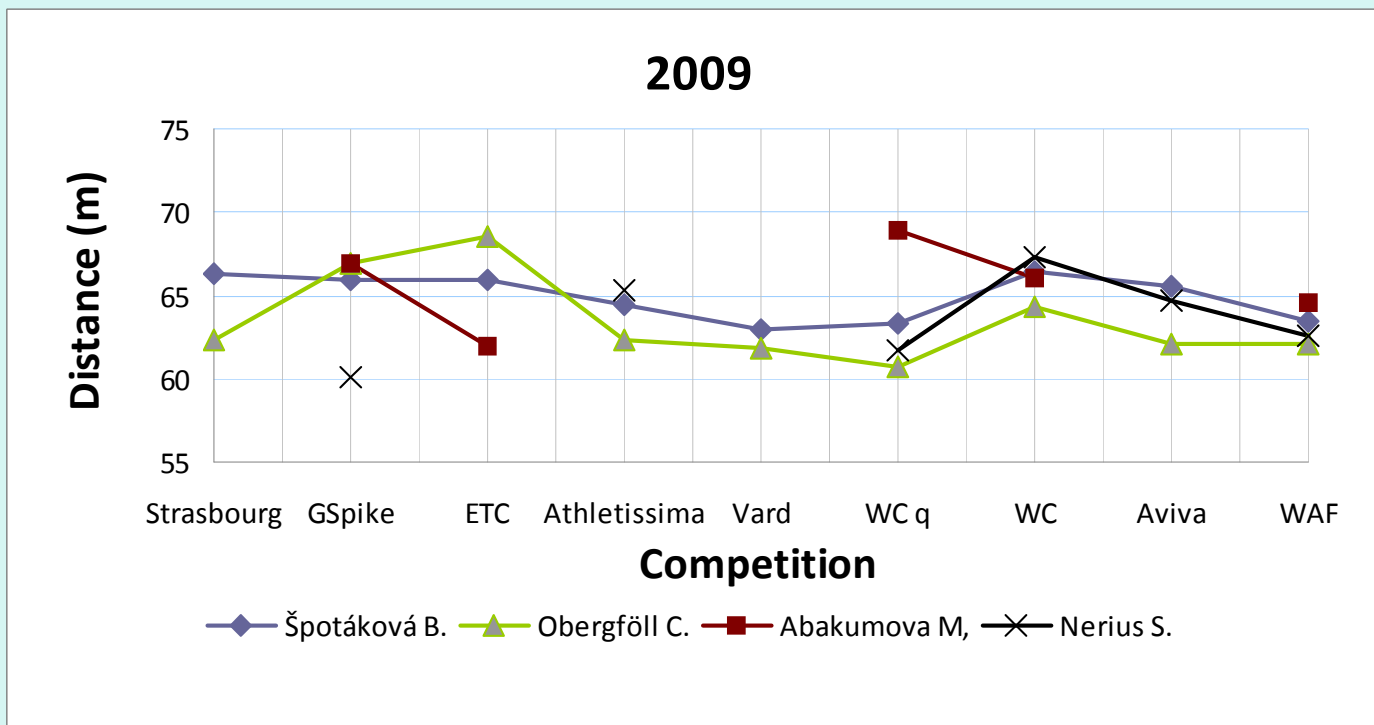
Rank in WL: 8th

- She threw a PB this year (63.95 m) in Eugene USA.
- After that her performance dropped down to 52.71 m thrown at the WC in Berlin

Top Women's within-individual Performance

- Data: best 10 throws
- Only 3 PBs thrown in athletes' home country.
- PB thrown at ages ranging from 22 to 27 (mean: 24.5 ± 2.1 yrs.), with Abakumova (currently 23) throwing 70.78 m in 2008 Beijing Olympics at age 22, and Špotáková throwing world record of 72.28 m (Stuttgart 2008) at age 27.
- Nerius S, also competed during the old model. PB of 69.42m (Monaco 1996) at age 24. PB during new model of 68.34m (Elstal, Germany 2008) at age 36.
- Most of the best 10 performances of top throwers in 2009 (for 5 athletes).

Seasonal Progress

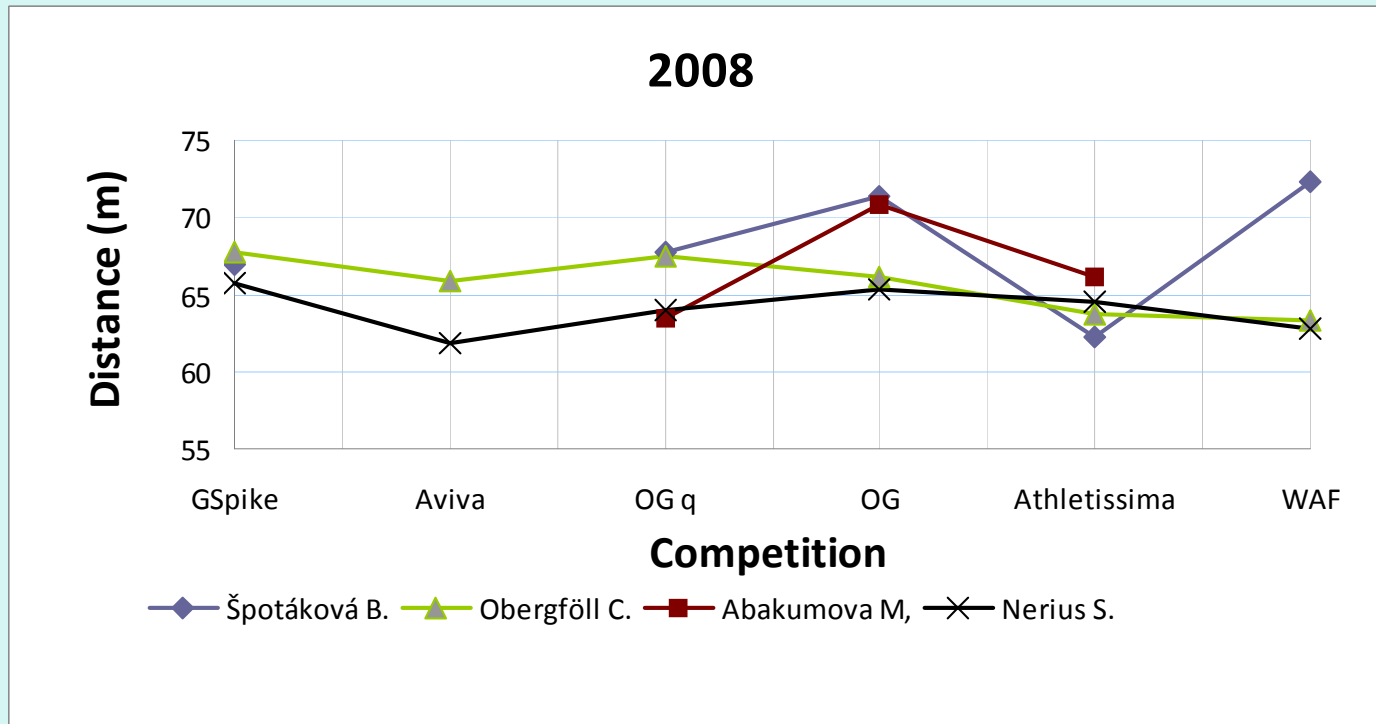


WL Ranking:

- 1 Abakumova
- 2 Obergföll
- 3 Špotáková
- 4 Nerius

This year, Špotáková has finished in 1st position in six occasions, against 3 first places of Obergföll and Nerius. Although Špotáková qualified in first place for the Berlin WC she got the silver medal. Nerius got the gold and Abakumova the bronze.

Seasonal Progress

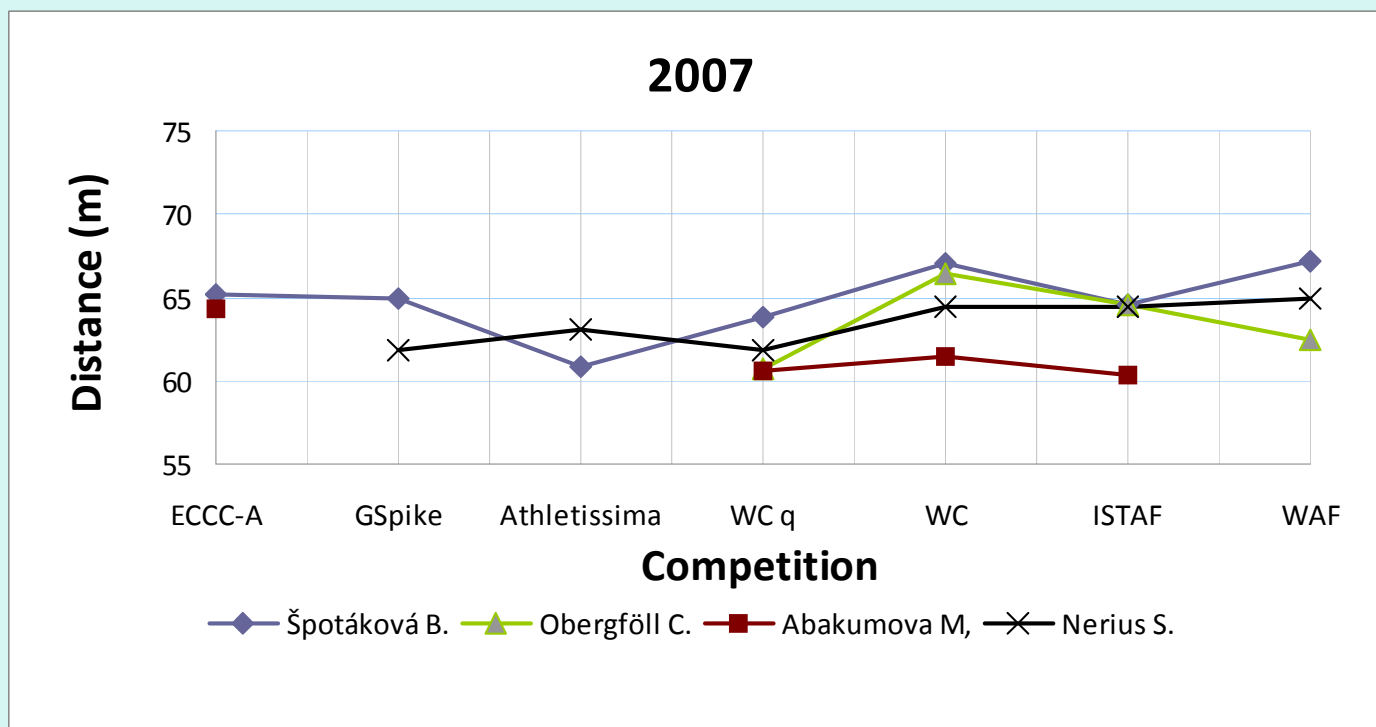


WL Ranking:

- 1 Špotáková
- 2 Abakumova
- 3 Obergföll
- 4 Nerius

In 2008, Obergföll and Špotáková participated in the same 5 events with Špotáková throwing longer distances than Obergföll in 3 occasions. Špotáková got gold at the Beijing Olympics with a throw of 71.42m (Abakumova was silver and Obergföll bronze). Špotáková threw her PB at the WAF.

Seasonal Progress

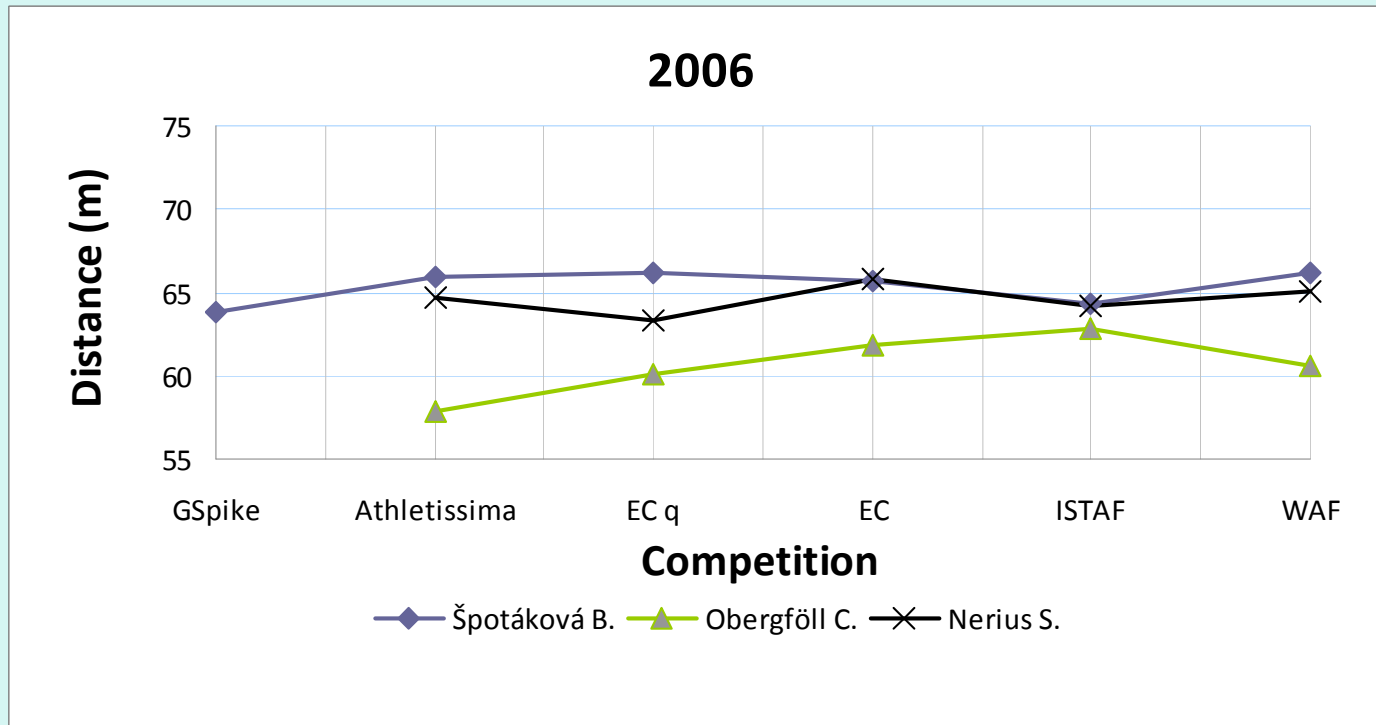


WL Ranking:

- 1 Obergföll
- 2 Špotáková
- 3 Nerius
- 7 Abakumova

In 2007, Špotáková dominated the competitions where they participated together. She qualified in second position for the Osaka WC and got the gold whereas Nerius was silver and Obergföll bronze

Seasonal Progress

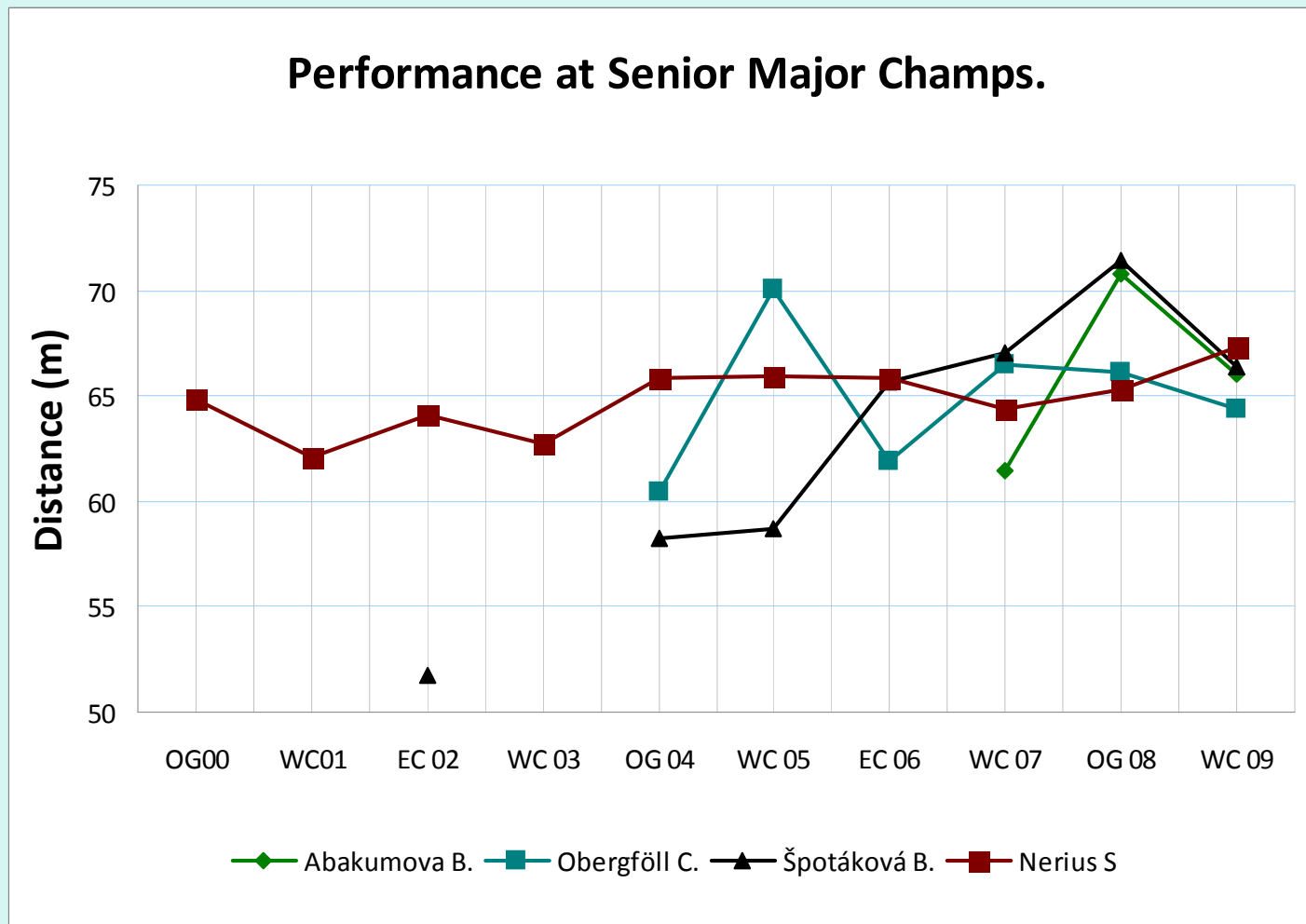


WL Ranking:

- 1 Obergföll
- 2 Špotáková
- 4 Nerius

In 2006, Špotáková was first in 4 competitions (including the EC qualifying) while Nerius won 2 events. Nerius was gold at the EC, Špotáková was silver and Obergföll was fourth.

Performance at Major Championships



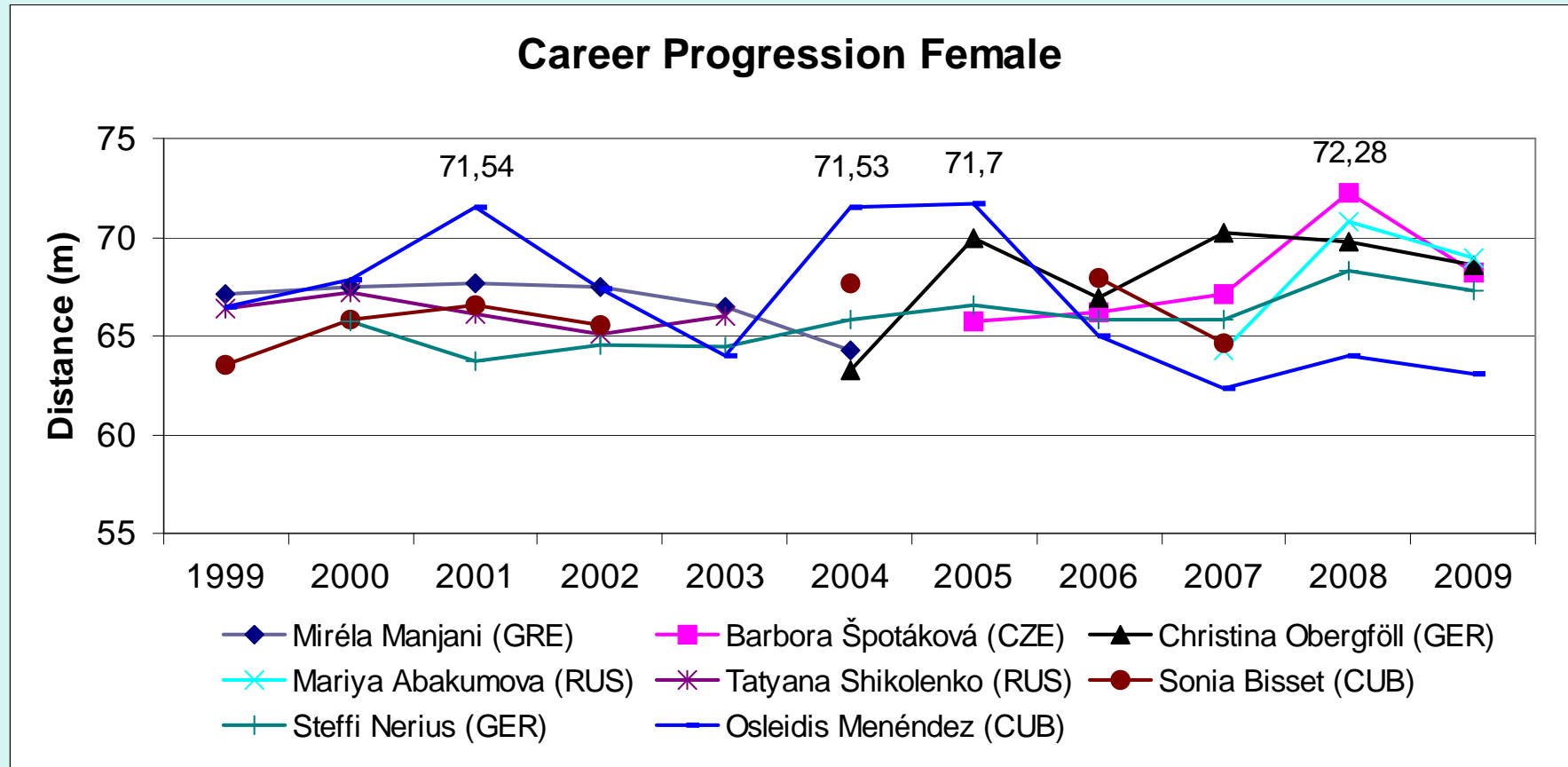
Female Top throwers (over the years)

- Based on their positions in Top Lists
 - Miréla Manjani (GRE)
 - Barbora Špotáková (CZE)
 - Christina Obergföll (GER)
 - Mariya Abakumova (RUS)
 - Tatyana Shikolenko (RUS)
 - Sonia Bisset (CUB)
 - Steffi Nerius (GER)
 - Osleidis Menéndez (CUB)

Female Top Throwers

	Begin	age	End	age	Years in WBL	M	SD
Miréla Manjani (GRE)	1999	23	2004	28	6	66,8	1,3
Barbora Špotáková (CZE)	2005	24	2009	28	5	67,9	2,6
Christina Obergföll (GER)	2004	23	2009	28	6	68,1	2,7
Mariya Abakumova (RUS)	2007	21	2009	23	3	68,0	3,3
Tatyana Shikolenko (RUS)	1999	31	2003	35	5	66,2	0,8
Sonia Bisset (CUB)	1999	28	2007	36	7	66,0	1,6
Steffi Nerius (GER)	2000	28	2009	37	10	65,8	1,4
Osleidis Menéndez (CUB)	1999	20	2009	30	11	66,8	3,5

Career Progression Female



Some Conclusions and Questions:

- World Lists
 - Higher presence of Europeans at Senior level. Other countries at Junior level emerging in top lists
- Major Championships:
 - In last 19 yrs. better performance at Olympic games
 - # Importance of the competition, psychological factors...
- Top Performers:
 - Different individual patterns
 - # what is behind such patterns ?
 - Age at which top8 throwers get PBs varies more for women
 - Most PB's for males achieved at home venues
 - # importance of competition, presence of other “big” competitors...

Databases Consulted

- <http://www.european-athletics.org/>
- <http://www.iaaf.org/>
- <http://www.tilastopaja.org/>
- <http://www.sports-reference.com/>



Thanks for your attention !!

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