



EUROPEAN
ATHLETICS

COACHING SUMMIT SERIES

1st European Race Walking Conference

Leeds Metropolitan University, Leeds, UK

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Planning & Preparation

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OUTLINE

1. Physiological Profile
2. Performance Profile
3. From 2000 to 2003
4. From 2003 to 20th August 2004
5. After 20th August 2004

PHYSIOLOGICAL PROFILE - 2004

PARAMETER	VALUE
Age	28-yrs
Height	1.75 m
Weight	59 kg
$\dot{V}O_{2max}$	$\sim 70 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$
Hb	13.5/15 $\text{g}\cdot\text{dl}^{-1}$
HR_{max}	192 $\text{beats}\cdot\text{min}^{-1}$
HR_{rest}	42 $\text{beats}\cdot\text{min}^{-1}$
Body Fat	6.5%

PERFORMANCE PROFILE - 2004

PARAMETER	VALUE
Weekly Training	130-/150-km
5000-m	18min 42s 80tenths
5-km	19min 43s 24tenths
10000-km	38min 23s 50tenths
10-km	39min 54s 00tenths
20-km	1h 22min 01s
50-km	3h 47min 54s

'The Black Gap'

FROM 2000 TO 2003

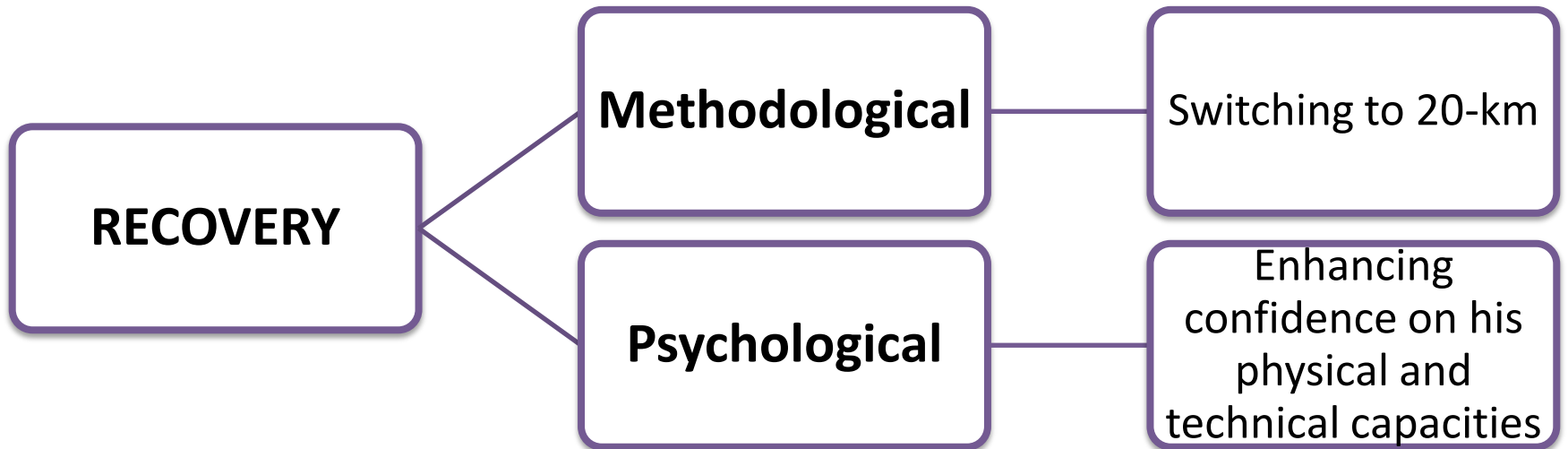


WORLD CHAMPIONSHIPS

- **Venue:** Seville-Spain
- **Year:** 25th August 1999
- **Result:**
 - 50-km
 - 3h 47min 54s (4min 33s·km⁻¹)
- **Notes:**
 - Gold medal



TARGET



SWITCHING OVER 20-km: FACTORS

1. Emphathy towards technical action
2. High basic RW speed
3. High $\dot{V}O_{2\max}$ (i.e., $\sim 70 \text{ ml}\cdot\text{kg}^{-1}\cdot\text{min}^{-1}$)
 - Caucasian distance runners (Esteve-Lanao et al., 2005)
 - South-African distance runners (Coetzer et al., 1993)
 - Cross-country skiers (Mahood et al., 2001)
4. Low WE
5. High lactate tolerance

OCTOBER 2003

The Final Decision

YEAR	AGE	10000-m	20-km	50-km
1995	19	42min 45s 90tenths	1h 30min 33s	---
1996	20	43min 08s 84tenths	---	---
1997	21	42min 37s 17tenths	1h 26min 51s	4h 06min 43s
1998	22	40min 57s 10tenths	1h 25min 12s	4h 02min 15s
1999	23	39min 53s 54tenths	1h 25min 44s	3h 47min 54s
2000	24	40min 42s 24tenths	1h 21min 21s	---
2001	25	39min 34s 59tenths	1h 24min 38s	4h 08min 35s
2002	26	40min 23s 00tenths	1h 26min 08s	---
2003	27	39min 14s 16tenths	1h 22min 01s	---
2004	28	38min 23s 50tenths	1h 19min 39s	---

The Crucial Sessions

FROM 2003 TO 20th AUGUST 2004



WORLD MILITARY CHAMPIONSHIPS

- **Venue:** Catania-Italy
- **Year:** December 2003
- **Result:**
 - 10000-m
 - 39min 42s 00tenths (3min 58s 20tenths·km⁻¹)
- **Notes:**
 - NO specific training preparation
 - USE OF relative-power sessions
- **METHODOLOGICAL CHANGE** (Midgley et al., 2007)
 - > quality
 - < quantity

ITALIAN WINTER MEETING

- **Venue:** Greece
- **Year:** January 2004
- **Most crucial sessions:**
 - 2 x 15-km: 1h 07min 30s (4min 30s·km⁻¹)
 - 3 x 10-km: 44min 00s (4min 24s·km⁻¹)
 - 10 x 2-km: 8min 06s (4min 03s·km⁻¹)
- **TARGET** → to improve both quantity and quality



ITALIAN INDOOR CHAMPIONSHIP

- **Venue:** Genoa-Italy
- **Year:** February 2004
- **Result:**
 - 5000-m
 - 18min 42s 00tenths (09min 03s + 09min 39s)
 - 3rd annual world indoor performance (<http://iaaf.org>, at 2004)
- **Notes:**
 - Close relationship between difference race distances
 - The Ivano's power capacity



1st ALTITUDE STAGE

- **Period:** 26th February - 22nd March 2004 (Levine&Stray-Gundersen, 1997; Gore et al., 2001; Townsend et al., 2002; Schmidt et al., 2002; Aughey et al., 2005)
- **Venue:** Albuquerque, New Mexico-USA
- **Altitude:** 1500-m (Wilber, 2004; Millet et al., 2010)
- **Most crucial sessions:**
 - 15-km: 1h 04min 06s (21min 30s + 21min 26s + 21min 10s)
 - 2 x 10-km: 44min 16s + 41min 53s (21min 02s + 20min 49s)
 - 10 x 1000-m: mean of 4min·km⁻¹
 - Long distances: mean of 5min – 4min 55s·km⁻¹
- **METHODOLOGICAL CHANGE:**
 - Altitude- as sea level-training
 - Neuromuscular stimulus

NEUROMUSCULAR STIMULUS

- Middle- and long-uphill distances
- Adapted Kenyans' fartlek
 - Mixed course ups and downs → High intensity both in the two stretches
 - HR- and TRAINING LOAD-monitoring (Midgley et al., 2007; Borresen&Lambert, 2009)
 - Long lasting training at high lactacidemic levels
 - Steps count on different distances
- **Target** → To preserve the stride length (i.e., frequency/ampleness)

RW CHALLENGE 2004

- **Venue:** Tijuana-Mexico
- **Year:** 20th March 2004
- **Result:**
 - 20-km
 - 1h 19min 42s (03min 59s·km⁻¹)
 - 2nd Italian all-time performance (<http://fidal.it>, at 2004)
- **Notes:**
 - Awareness to be on the right path.

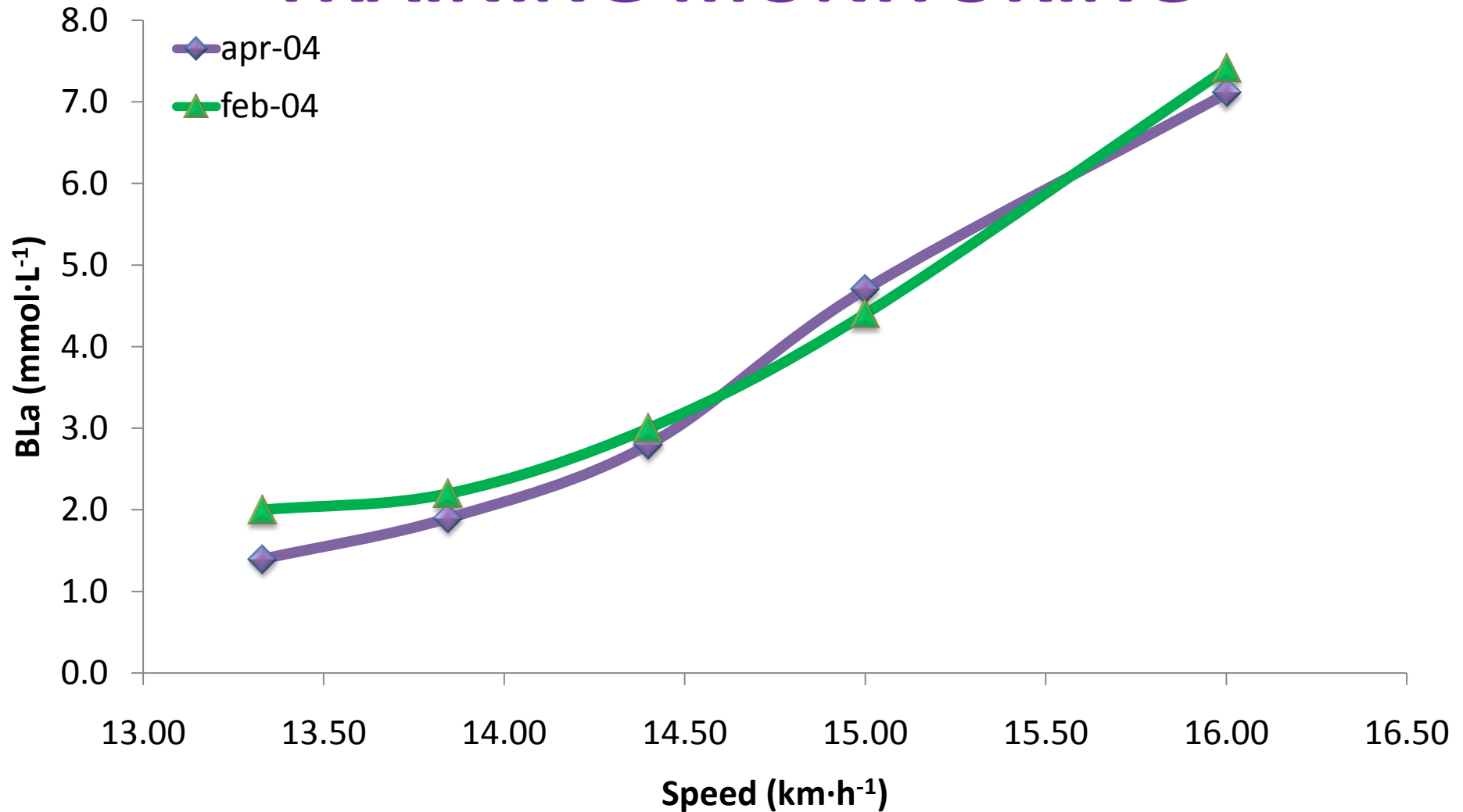
TRAINING MONITORING

Step	Metres	Time·km ⁻¹	Speed	BLa	HR	4 mmol·L ⁻¹			5 mmol·L ⁻¹		
						km·h ⁻¹	Time·km ⁻¹	HR	km·h ⁻¹	Time·km ⁻¹	HR
I	1600	4min 30s	13.33								
II	1600	4min 20s	13.85								
III	1600	4min 10s	14.40								
IV	1600	4min 00s	15.00								
V	1600	3min 45s	16.00								

Established Variables



TRAINING MONITORING



TRAINING MONITORING

- Can Valid Training Recommendations be Given to Runners and Coaches Based on Current Scientific Knowledge? (Midgley et al., 2007)
- Physiological parameters
- Biomechanics parameters

RW WORLD CUP 2004

- **Venue:** Naumburg-Germany
- **Year:** 2nd May 2004
- **Result:**
 - 20-km, 6th
 - 1h 20min 06s (04min 00s·km⁻¹)
- **Target** → Self-control



ITALIAN RW CHAMPIONSHIP 2004

- **Venue:** San Giovanni Marignano, Rimini
- **Year:** 29th May 2004
- **Result:**
 - 20-km
 - 1h 21min 31s (04min 04s 55tenths·km⁻¹)
- **Notes:**
 - Alone throughout the race
 - 30°C
 - 2nd at 3min 00s



2nd ALTITUDE STAGE

- **Period:** end of June 2004
- **Venue:** Courmayeur-Italy
- **Altitude:** 3300-m, Torino Hut, LHTH (Millet et al., 2010)
- **Note:**
 - 4h/day at 1600-m (1 training); 20h/day at 3300-m
 - 250 steps to reach the hut

2nd ALTITUDE STAGE

- **Period:** July 2004, 22 days
- **Venue:** Sestriere-Italy
- **Altitude:** 2090-m LHTH (Millet et al., 2010)
- **Note:**
 - Never under 1354-m
 - 12 high-and very high-intensity trainings
 - 3 uphill trainings of 11/15-km with a final end spurt

2nd ALTITUDE STAGE

The crucial sessions

Training	Time	Time·km ⁻¹
10000-m (1 st day)	44min 30s	4min 27s
2 x 7.5-km + 1 x 5000-m	34min 21s – 33min 11s 21min 31s	4min 34s – 4min 25s 4min 18s
M: 5000-m (200-/200-m) A: 5000-m	20min 53s 20min 07s	4min 10s 4min 01s
20-km (3 speed changes)	Mean 1h 30min 00s	4min 30s
10000-m (2 speed changes) (M+A)	Mean 43min 00s	4min 18s
12-km	56min 00s	4min 40s
25-km	1h 58min 45s	4min 45s

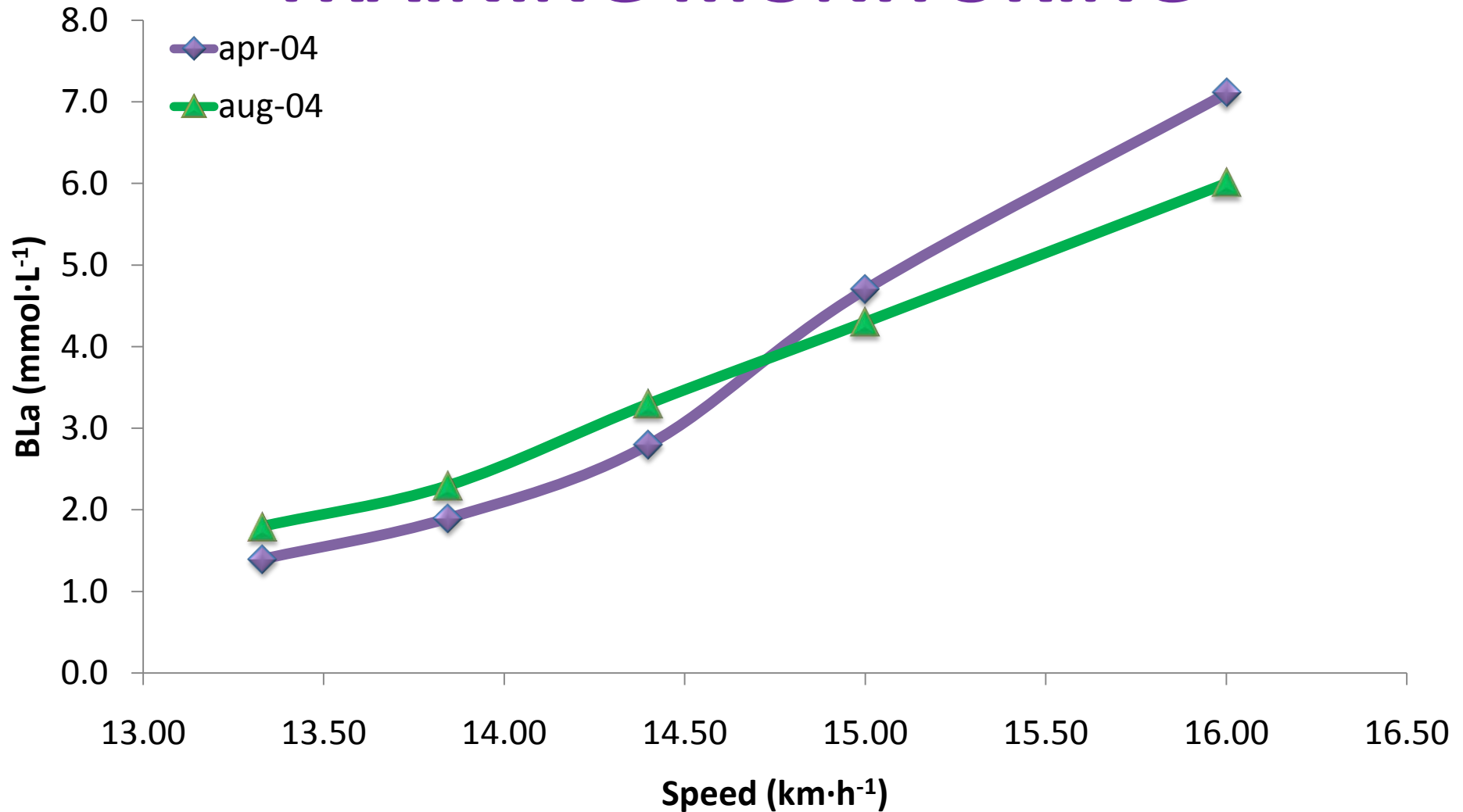
ITALIAN SUMMER RACE

- **Venue:** Saluzzo-Italy
- **Year:** 4th August 2004
- **Result:**
 - 10000-m
 - 38min 23s 05tenths (03min 50s·km⁻¹)
 - Italian Record (<http://fidal.it>, at 2004) and 5th world all-time performance (<http://iaaf.org>, at 2004)

PACING STRATEGY

km	Time Progress	1000-m split	2000-m split	5000-m
1	03min 55s	03min 55s		
2	07min 50s	03min 50s	07min 50s	
3	11min 43s	03min 50s		
4	15min 33s	03min 50s	07min 43s	
5	19min 23s	03min 50s		19min 24s
6	23min 13s	03min 48s	07min 40s	
7	27min 01s	03min 50s		
8	30min 51s	03min 55s	07min 38s	
9	34min 19s	03min 48s		
10	38min 23s	03min 44s	07min 32s	18min 59s

TRAINING MONITORING



XXVIII OLYMPIC GAMES

- **Venue:** Athens-Greece
- **Year:** 20th August 2004
- **Result:**
 - 20-km
 - 1h 19min 40s (03min 59s·km⁻¹)



TRAINING LOAD

Year	Total km
2000	6000
2001	4600
2002	5300
2003	5000
2004	5500

The Crucial Sessions

AFTER 20th AUGUST 2004

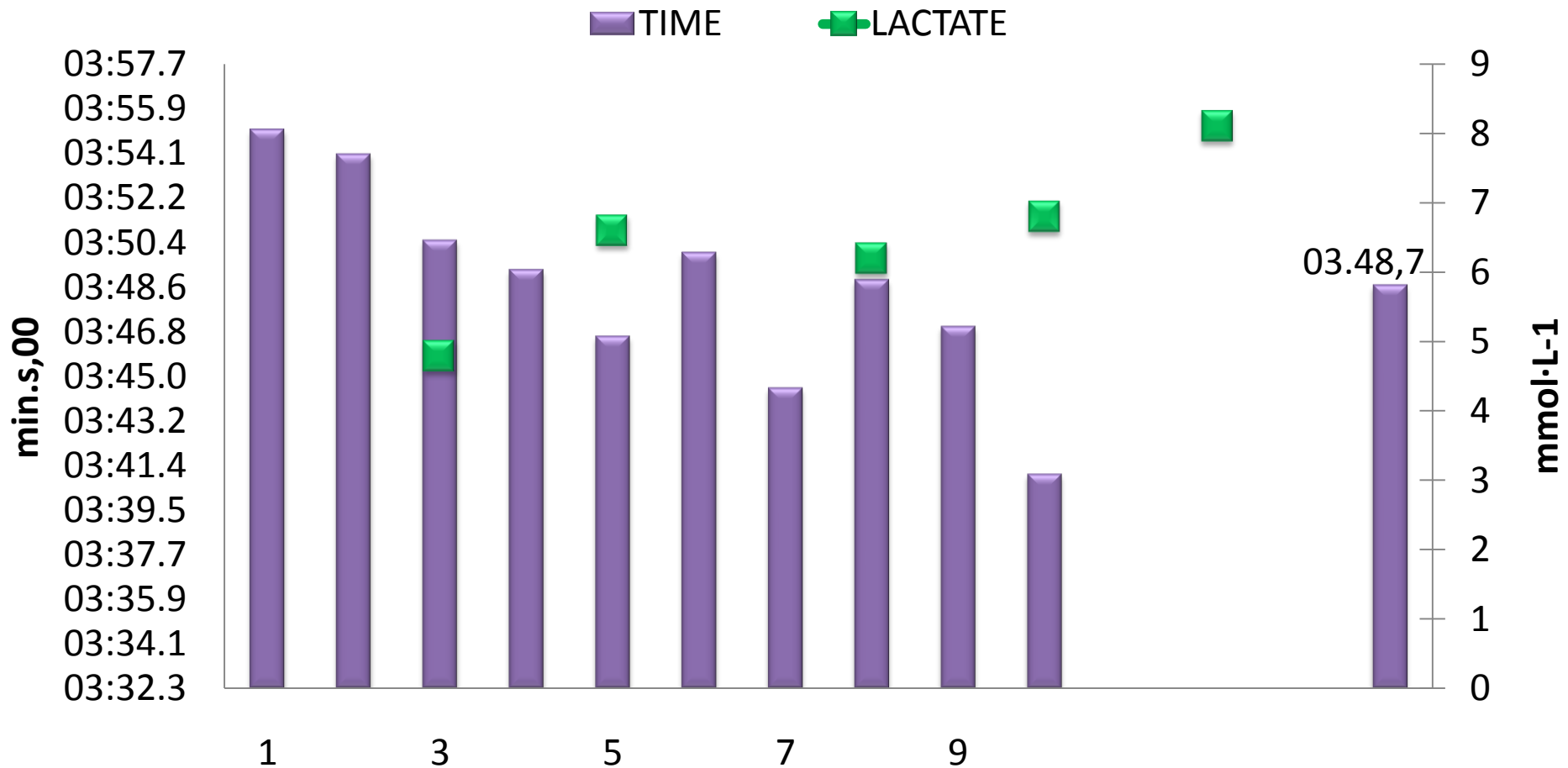


INTENSITY

The development of several physiological and performance parameters seems to match high-intensity training session (Midgley et al., 2007)



10 x 1000-m / June 2007, Italy



4 x 1000 + 2000 / June 2009, Italy

- 1 → 3min 57s (7min 55s)
 - 2 → 3min 50s (7min 50s)
 - 3 → 3min 45s (7min 46s)
 - 4 → 3min 38s → 6,8; (7min 40s)
-
- **The following day:**
 - 20-km (1 h 25 min 46 s)
 - 22min 14s, 21min 05s (43min 20s) / 21min 08s, 21min 16s (42min 24s)
 - HR_{mean} 171 bpm (→ 89% HR_{max} = 192 bpm)

ITALIAN SUMMER RACE

- **Venue:** Sesto San Giovanni-Italy
- **Year:** 23rd July 2005
- **Result:**
 - 10000-m
 - 37min 58s 06tenths (03min 48s·km⁻¹)
 - 1st world all-time performance (<http://iaaf.org>, at 2005)



EUROPEAN RW CUP

- **Venue:** Leamington-UK
- **Year:** 20th May 2007
- **Result:**
 - 20-km
 - 1h 19min 36s (03min 59s·km⁻¹)
 - Personal Best (<http://iaaf.org>, at 2004)



EXERCISE INTENSITY AND PACING STRATEGY OF A 5-KM INDOOR RACE WALK DURING A WORLD RECORD ATTEMPT: A CASE STUDY

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J Strength Cond Res, in press

- **Venue:** Genoa-Italy
- **Year:** 21st February 2009
- **Result:**
 - 5000-m indoor
 - 18min 23s 05tenths (03min 41s·km⁻¹, 09min 03s 22tenths + 09min 20s 25tenths)
 - 11th performance all-time and 2009 World leading performance (<http://iaaf.org>, at 2004)

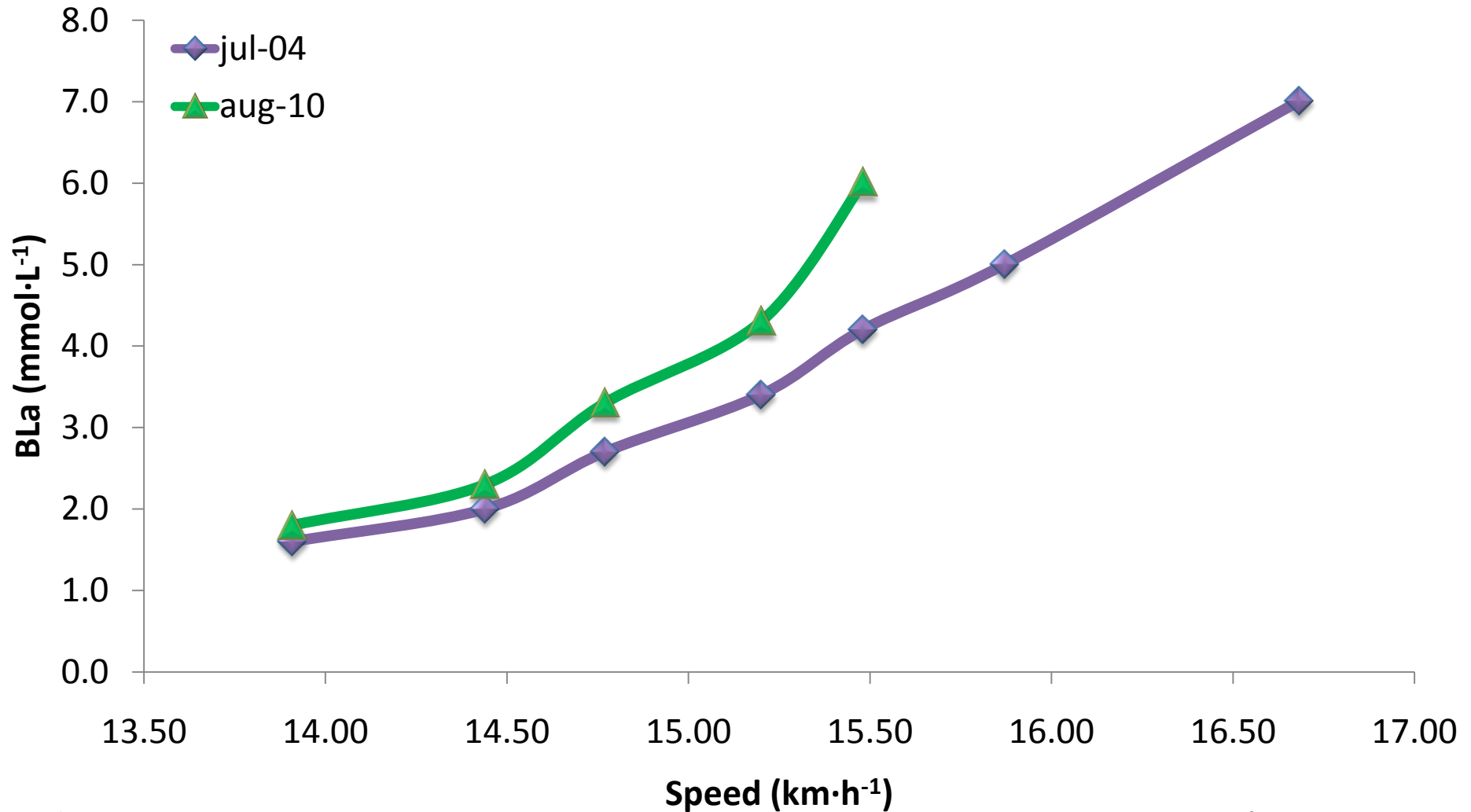


OFFICIAL RESULTS

Event	Place	Time	Venue
24th IAAF World Race Walking Cup	12	1h 24min 29s	Chihuahua
The XXIX Olympic Games	5	1h 19min 51s	Beijing
23rd IAAF World Race Walking Cup	16	1h 21min 19s	Cheboksary
19th European Athletics Championships	17	1h 27min 42s	Göteborg
22nd IAAF World Race Walking Cup	15	1h 21min 47s	La Coruña
28th Olympic Games	1	1h 19min 40s	Athens



TRAINING MONITORING



REVIEW ARTICLE

Bengt Kayser

Exercise starts and ends in the brain

Sports Med 2009; 39 (9): 743-764
0112-1642/09/0009-0743/\$49.95/0

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REVIEW ARTICLE

Do 'Mind over Muscle' Strategies Work?

Examining the Effects of Attentional Association and
Dissociation on Exertional, Affective and Physiological
Responses to Exercise



CONCLUSION

1. Training plan favoring quality vs. quantity area
2. To introduce cutting edge power stimulus in an already high performance endurance athlete
3. Training monitoring
4. To ensure close relationships between different race distances targets, Olympic and not (from 5- to 50-km)
5. Scientific evidences-based coaching

CONGRATULATIONS



'Success can only be achieved through repeated failure and introspection. Success represents the 1% of your work which results from the 99% that is called failure.'

*Soichiro Honda,
Founder of Honda Motor Co., Ltd.
(1906-1991)*

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THANK YOU FOR YOUR ATTENTION

