

Il Controllo dell'Allenamento: Strumenti per l'Allenatore



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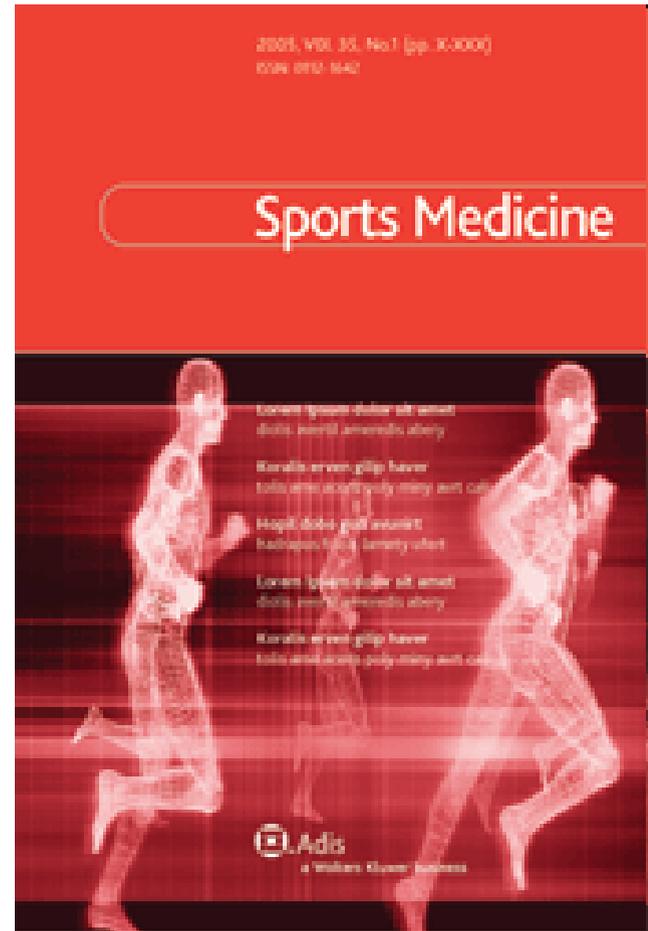
Allenamento?

- **Esperienza**
- **Evidenza Scientifica**
- **Aneddoti**

“ARTE OGGETTIVA”



Evidenza Scientifica



Sommario

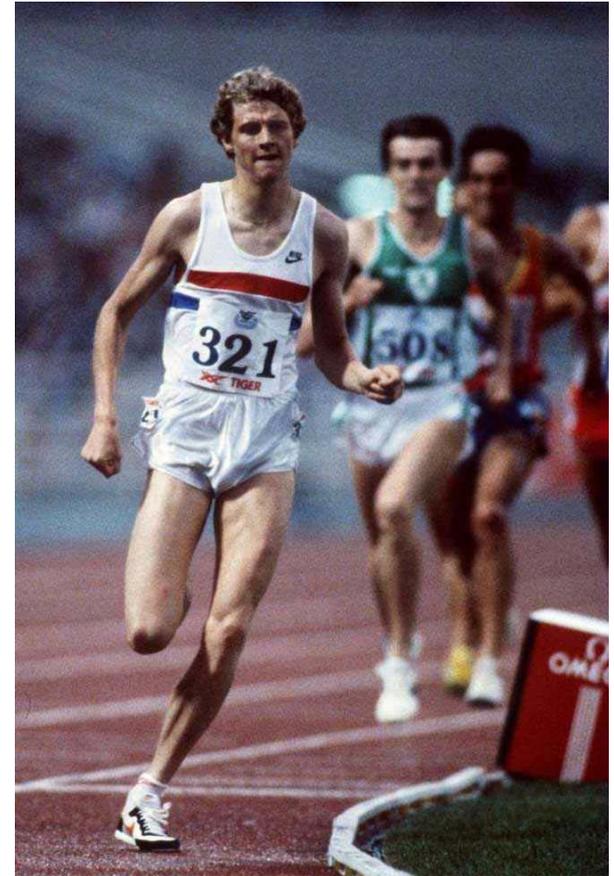
- **Allenamento?**
- **Scienza & Tecnica**
- **Prassi**
- **Prescrizione**
- **Controllo**



Sommario

Cosa intendiamo?

**“Progressione
di Adattamenti
Acuti & Cronici”**



Allenamento

Carico di Allenamento

Caratteristiche:

- **Volume**
- **Intensità**
- **Frequenza**

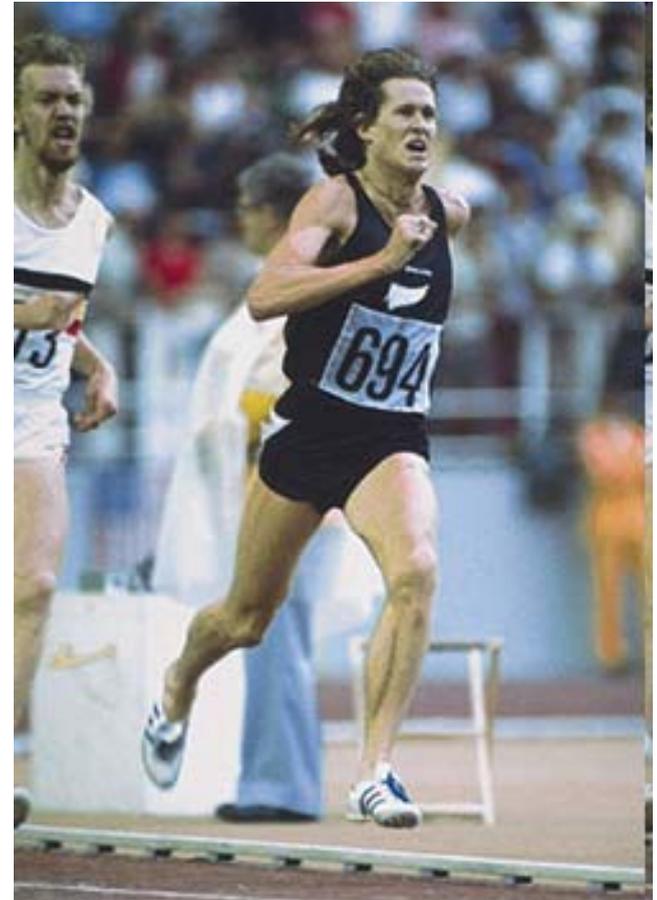


Sommario

Carico di Allenamento

- **Volume**
- **Intensità**

Carico = Volume x Intensità



Sommario

Carico di Allenamento

Magnitudo:

- **Debole**
- **Stimolante**
- **Allenante**
- **Eccessivo**



Allenamento

Carico di Allenamento

Eccessivo:

- **Overreaching**
- **Overtraining**



Sommario

Carico di Allenamento

Tipologia:

- **Interno**
- **Esterno**



Ottimizzazione

Obiettivo Allenamento

**Miglioramento
Performance**



Gara



Ottimizzazione

Periodizzazione

Max Performance

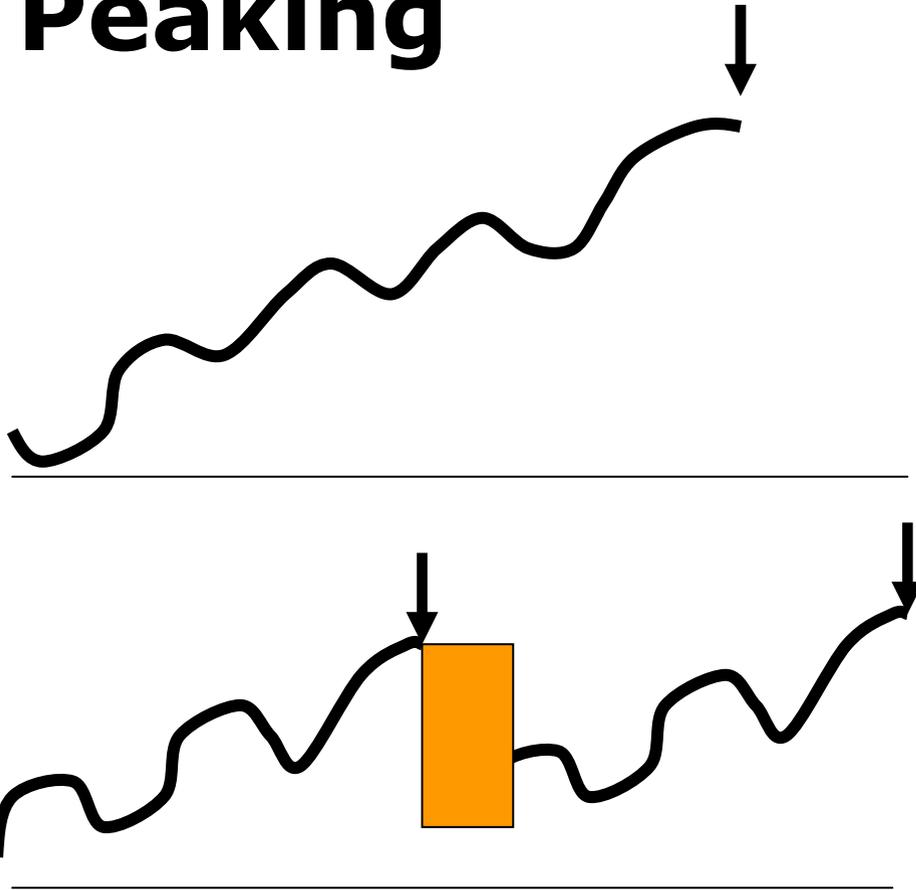
- **Semplice**
- **Sequenziale**



Ottimizzazione

Periodizzazione

Peaking



Ottimizzazione

Peaking

Max Performance

- **Giochi Sportivi**
- **Sport Individuali**



Ottimizzazione

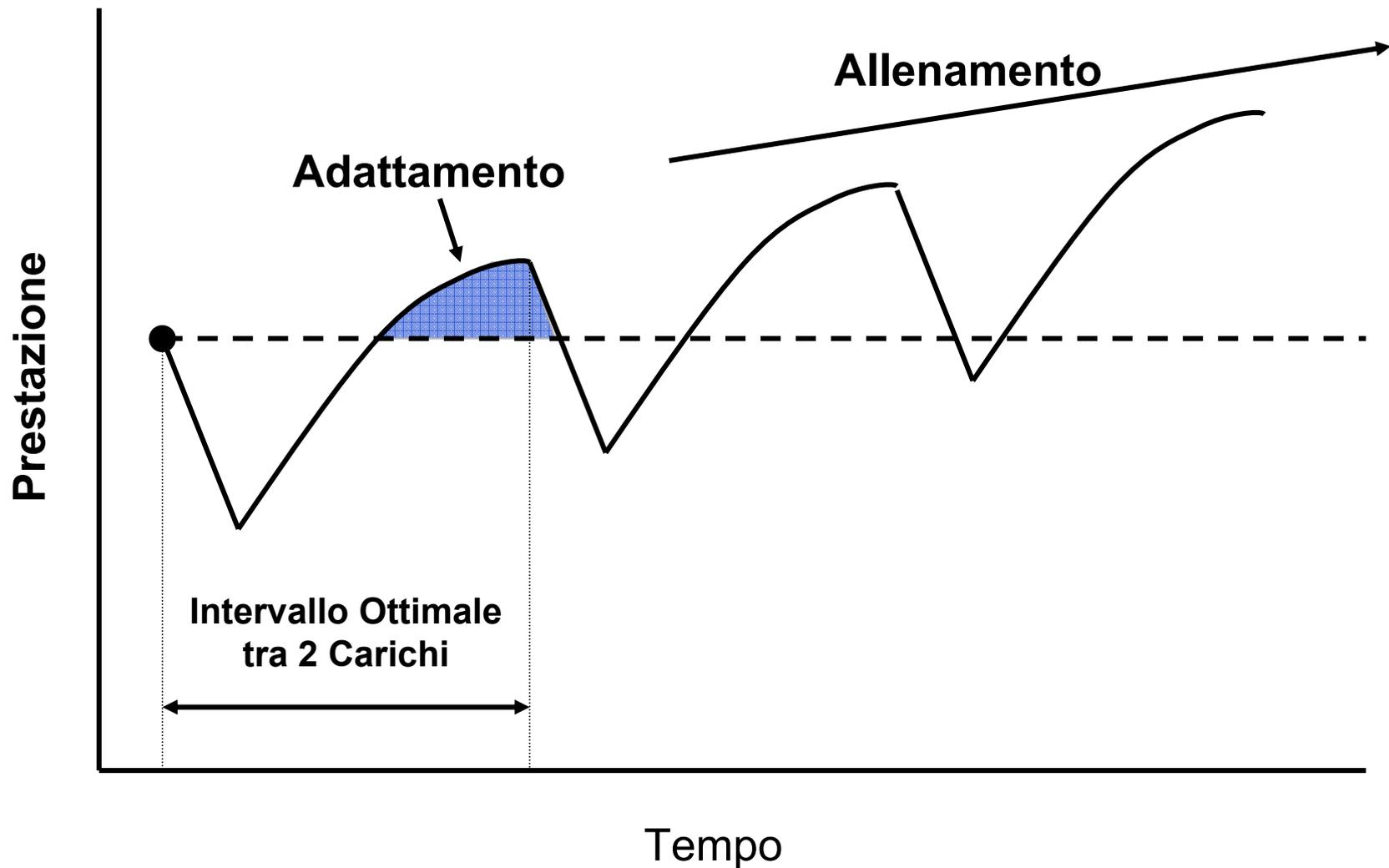
Periodizzazione

- **Microciclo**
- **Mesociclo**
- **Macro ciclo**

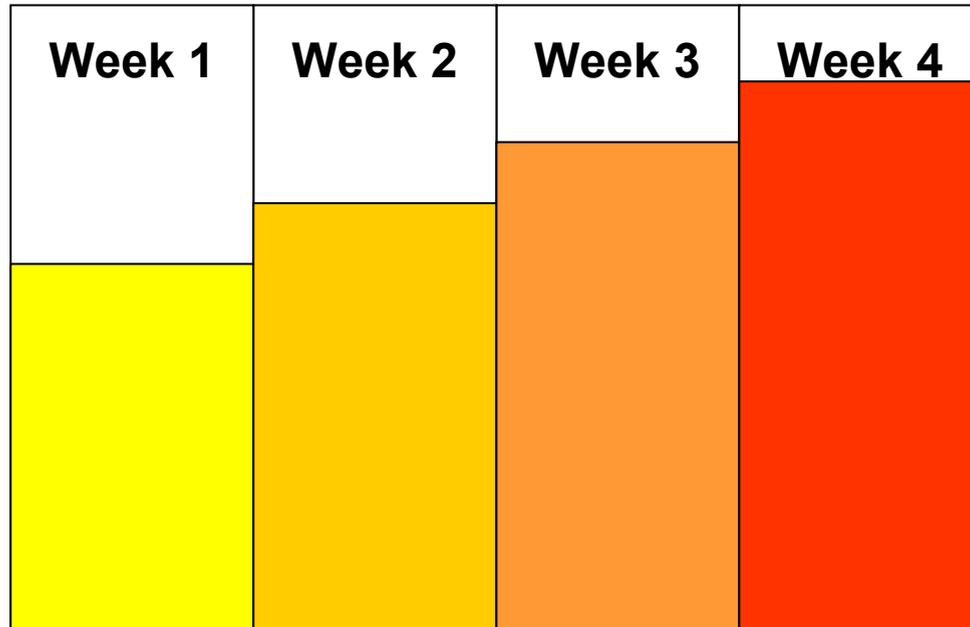


Ottimizzazione

Teoria dell'Allenamento

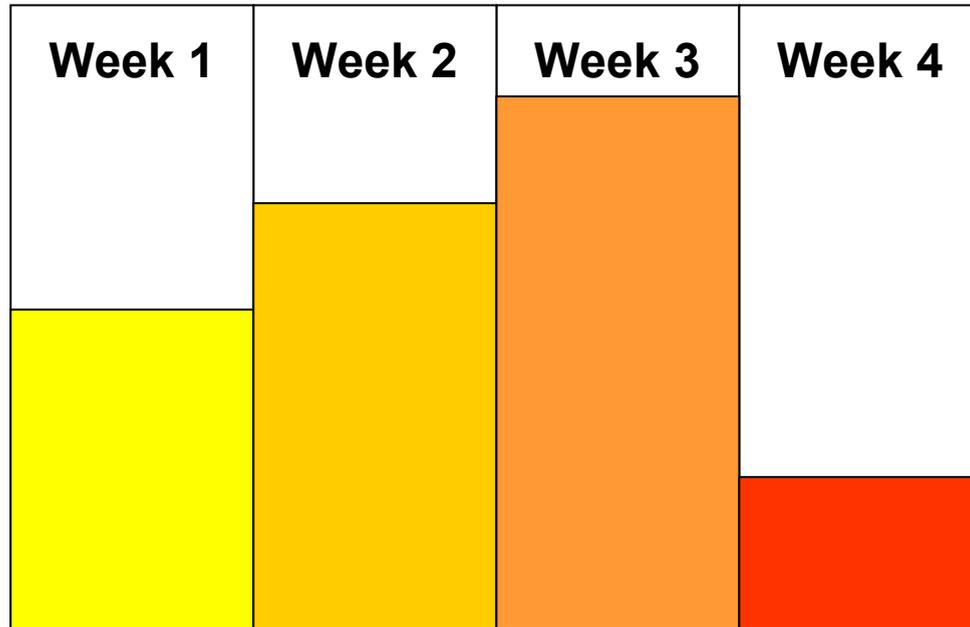


Periodizzazione



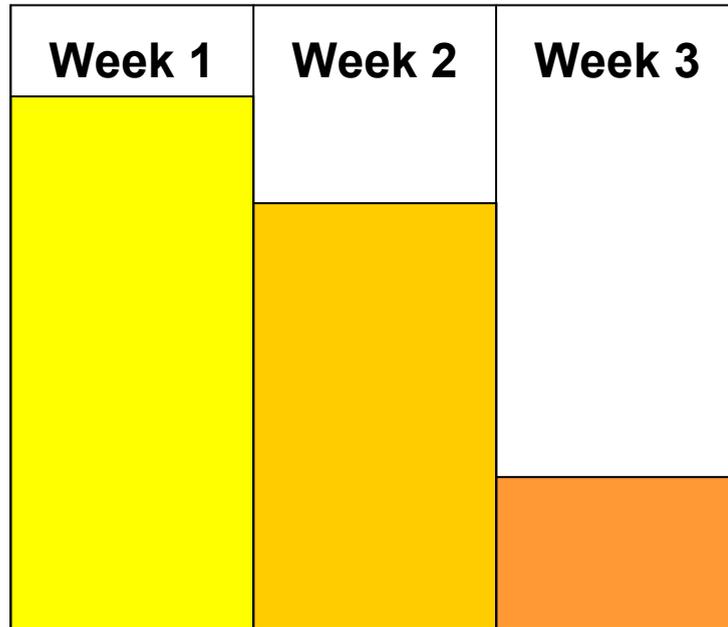
Microcicli

Periodizzazione



Microcicli

Periodizzazione



Microcicli

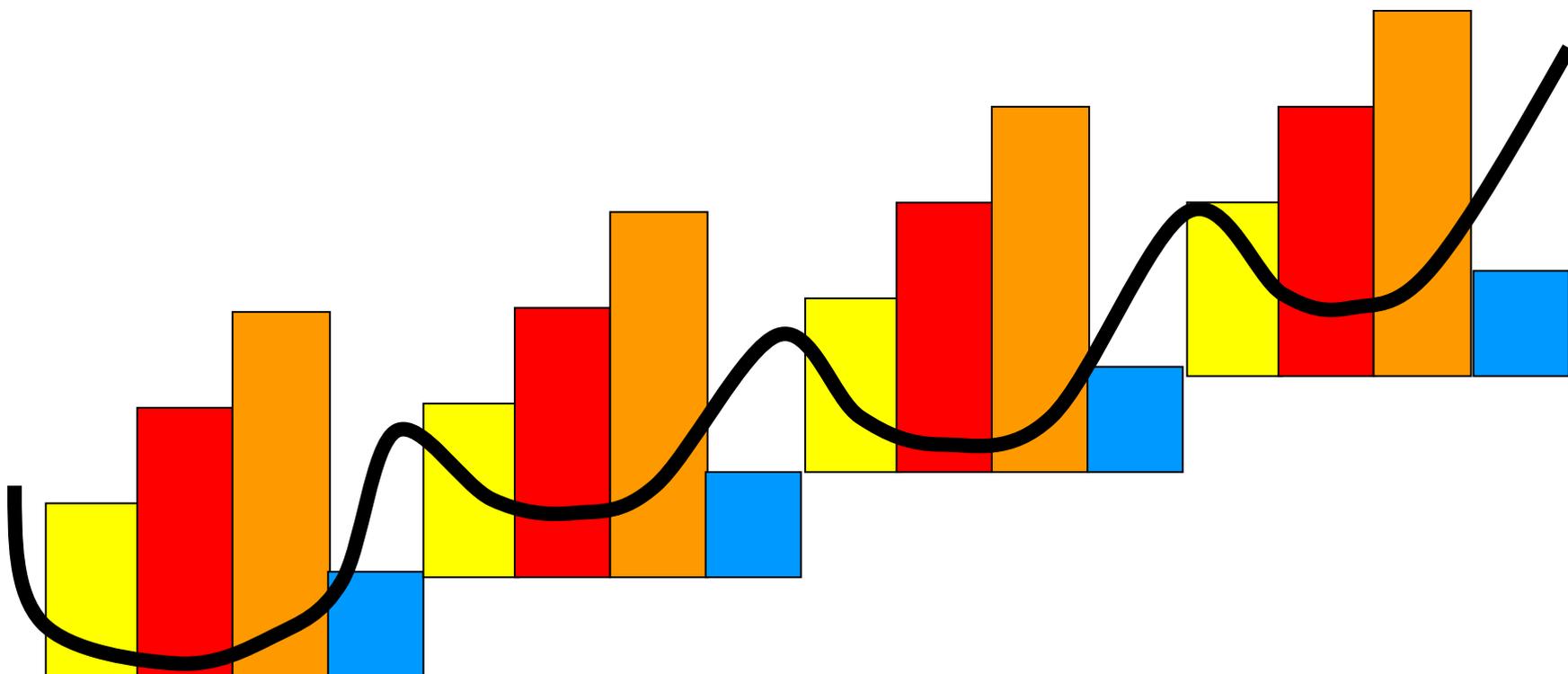
Periodizzazione

1° Micro

2° Micro

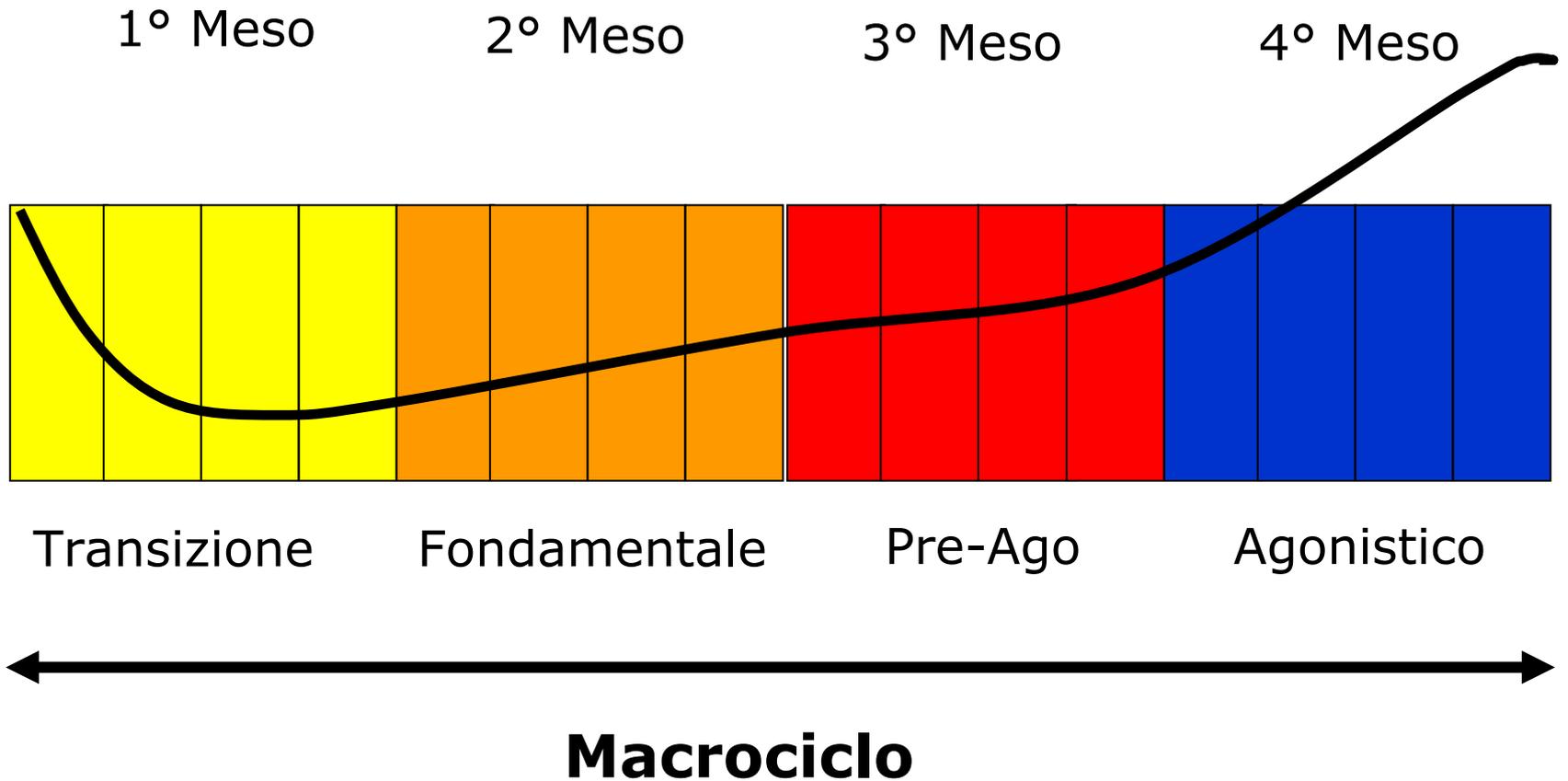
3° Micro

4° Micro



Mesociclo

Periodizzazione



Macrocielo

Periodizzazione

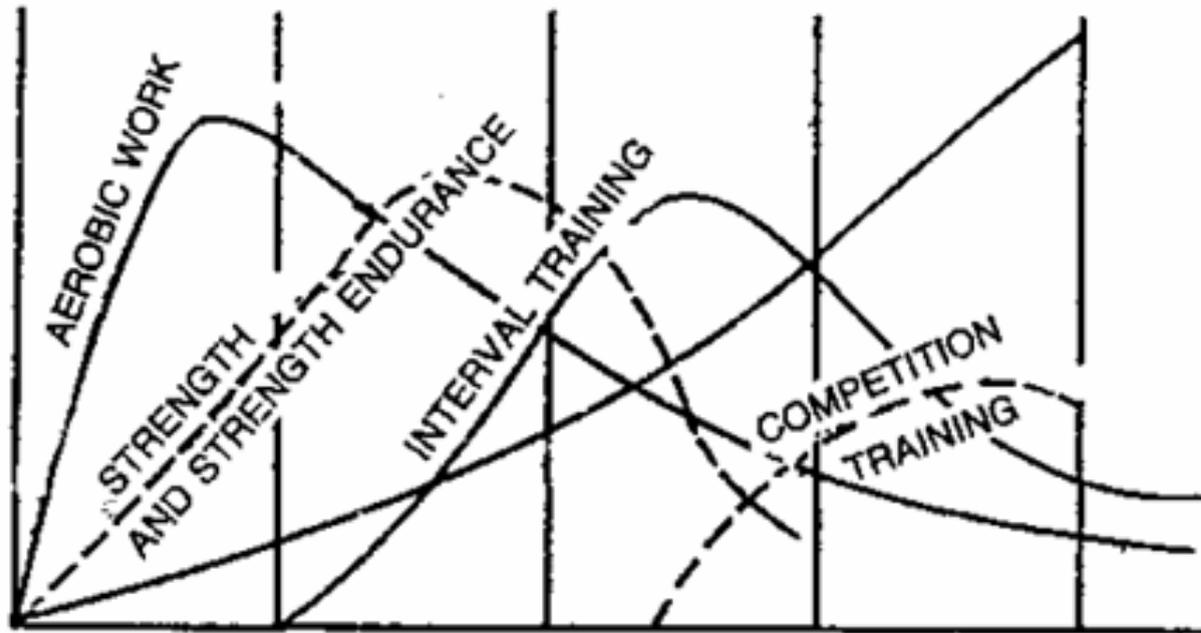


FIG. 3. ENDURANCE EVENTS
Principles of the distribution of different training methods.

Periodizzazione

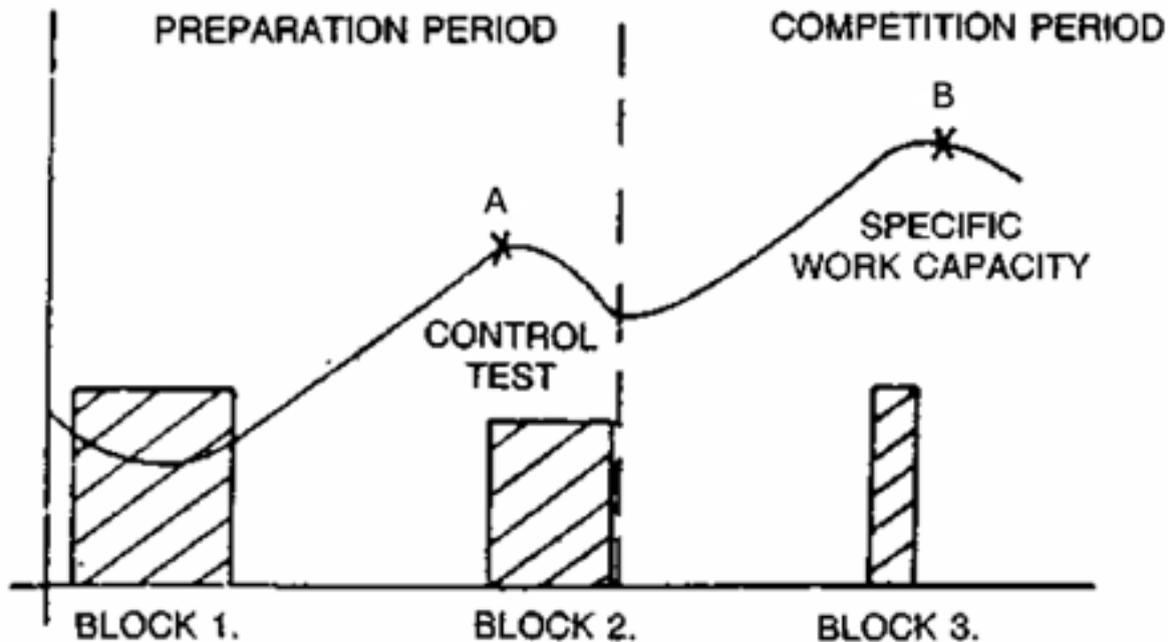


FIG. 4. CONSTRUCTION OF STRENGTH BLOCKS

A - The Level of event specific capacity is tested at the end of the preparation period.

B - The planned specific capacity for major competitions.

Periodizzazione

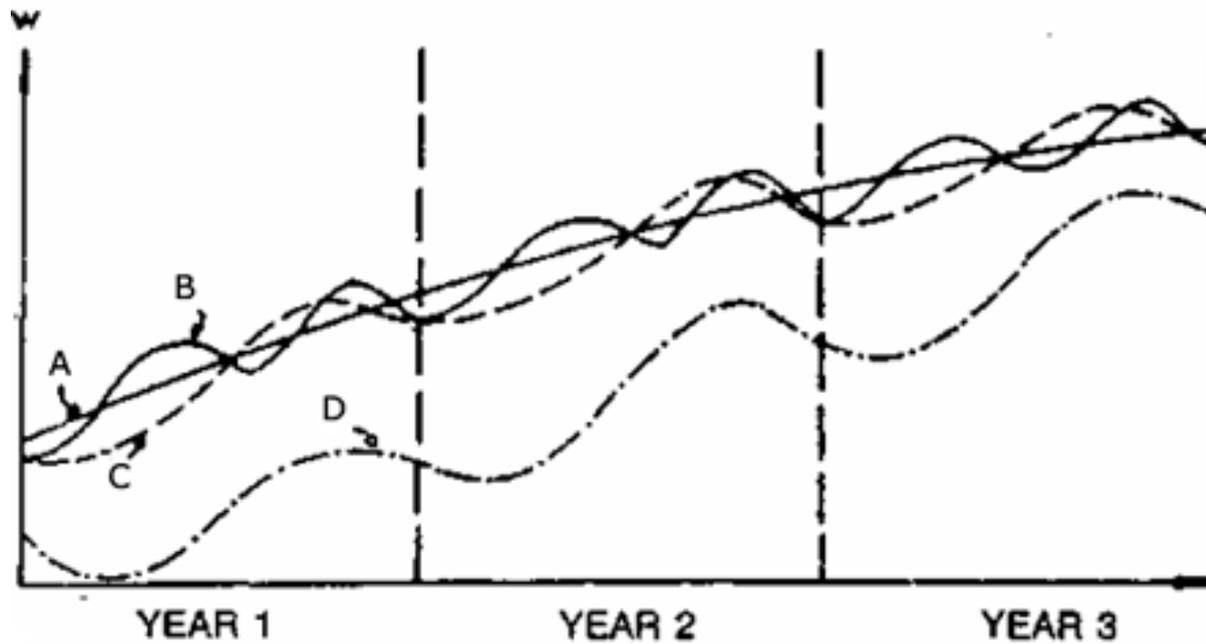


FIG. 1 DYNAMICS OF PERFORMANCE CAPACITIES

A - Best performance, B and C - Functional indicators related to performance.

D - Realisation of the movement potential.

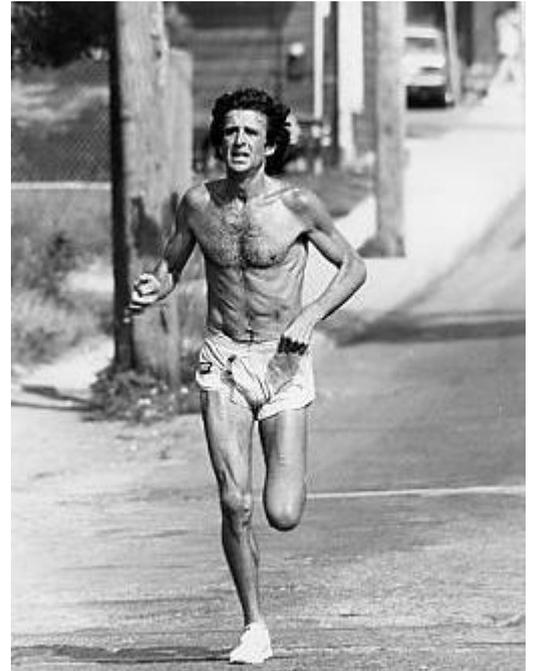
Valutazione

Neuromuscolare

Metabolica

Pscicologica

Sensibilità Test



Controllo Allenamento

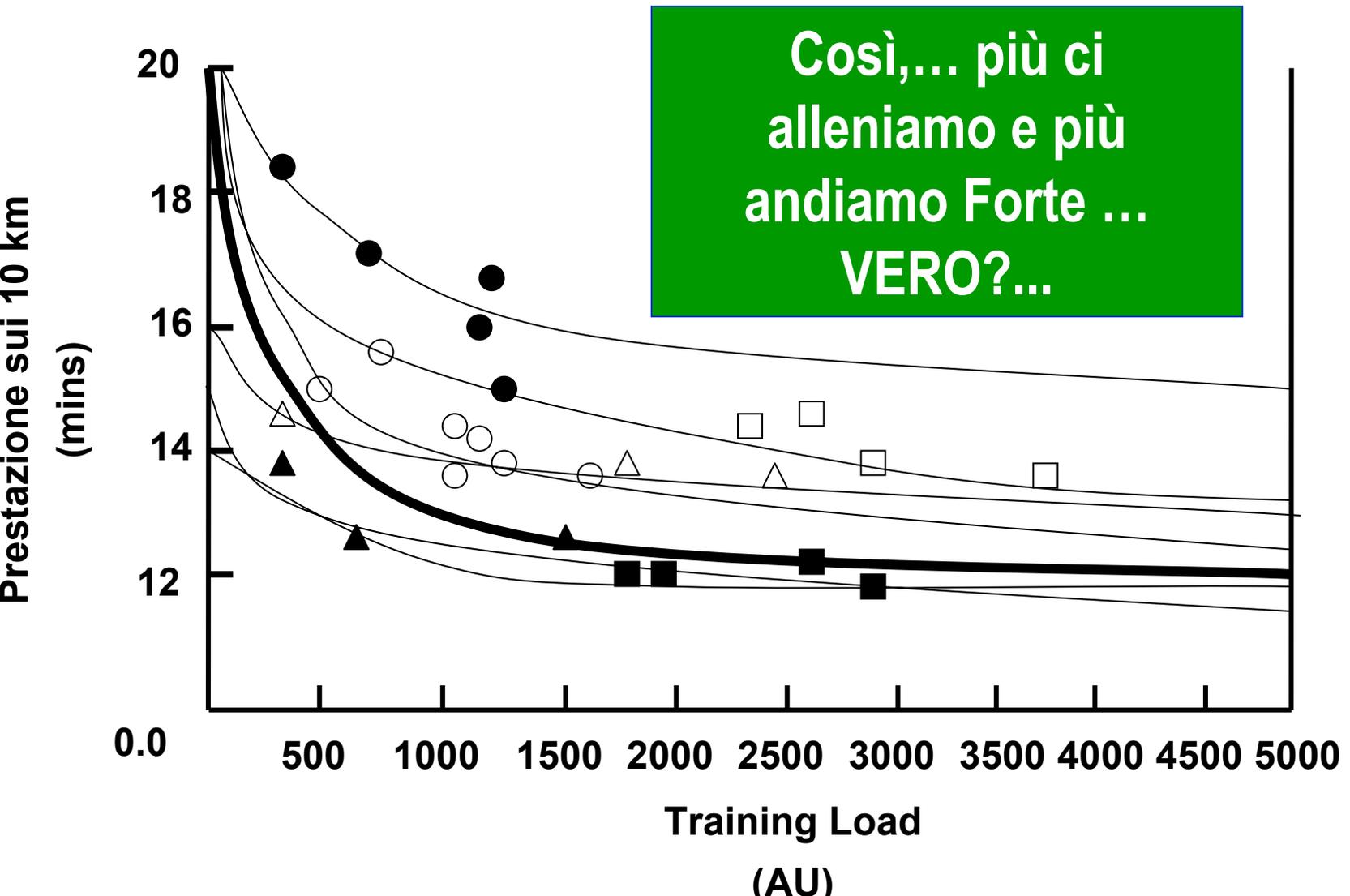
Ripetibilità Misura

N=70

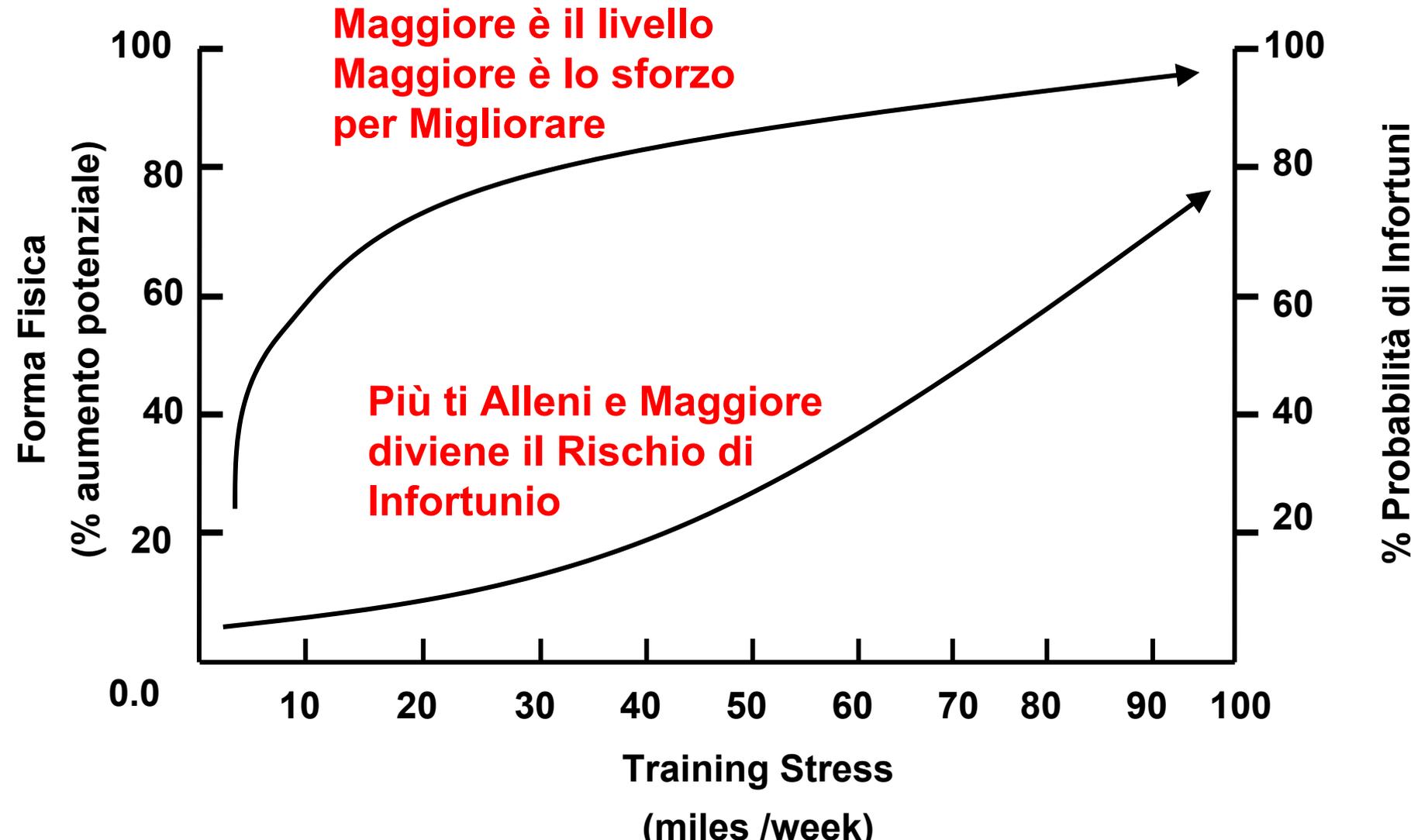
- CMJ CV=3.9% ICC=0.96
- 30m CV=2.3% ICC=0.96
- YYIET CV=5.7% ICC=0.99

Del et al. 2009

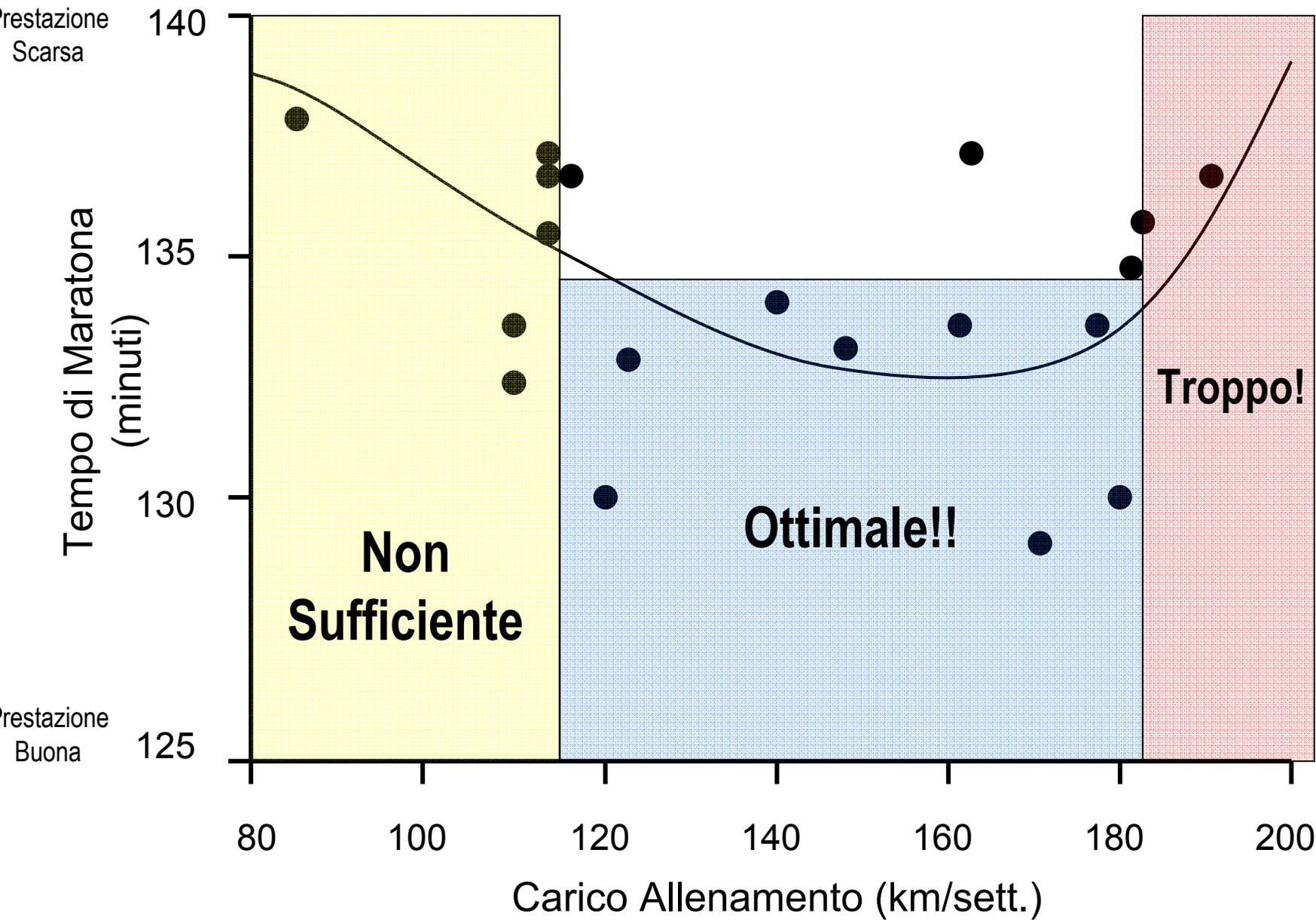
Carico vs Prestazione



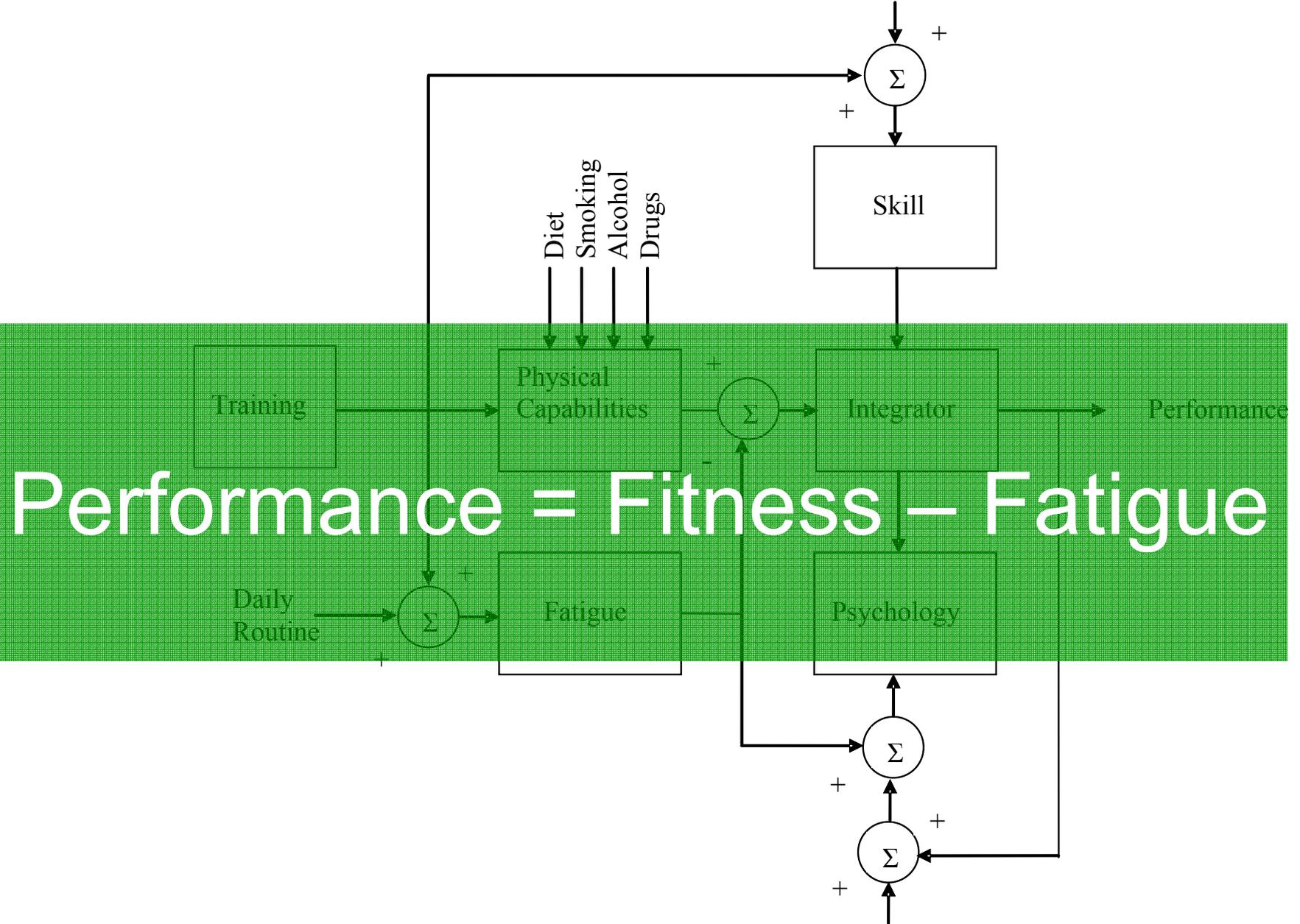
Problematiche del Sovraccarico



Relazione tra Carico & Prestazione



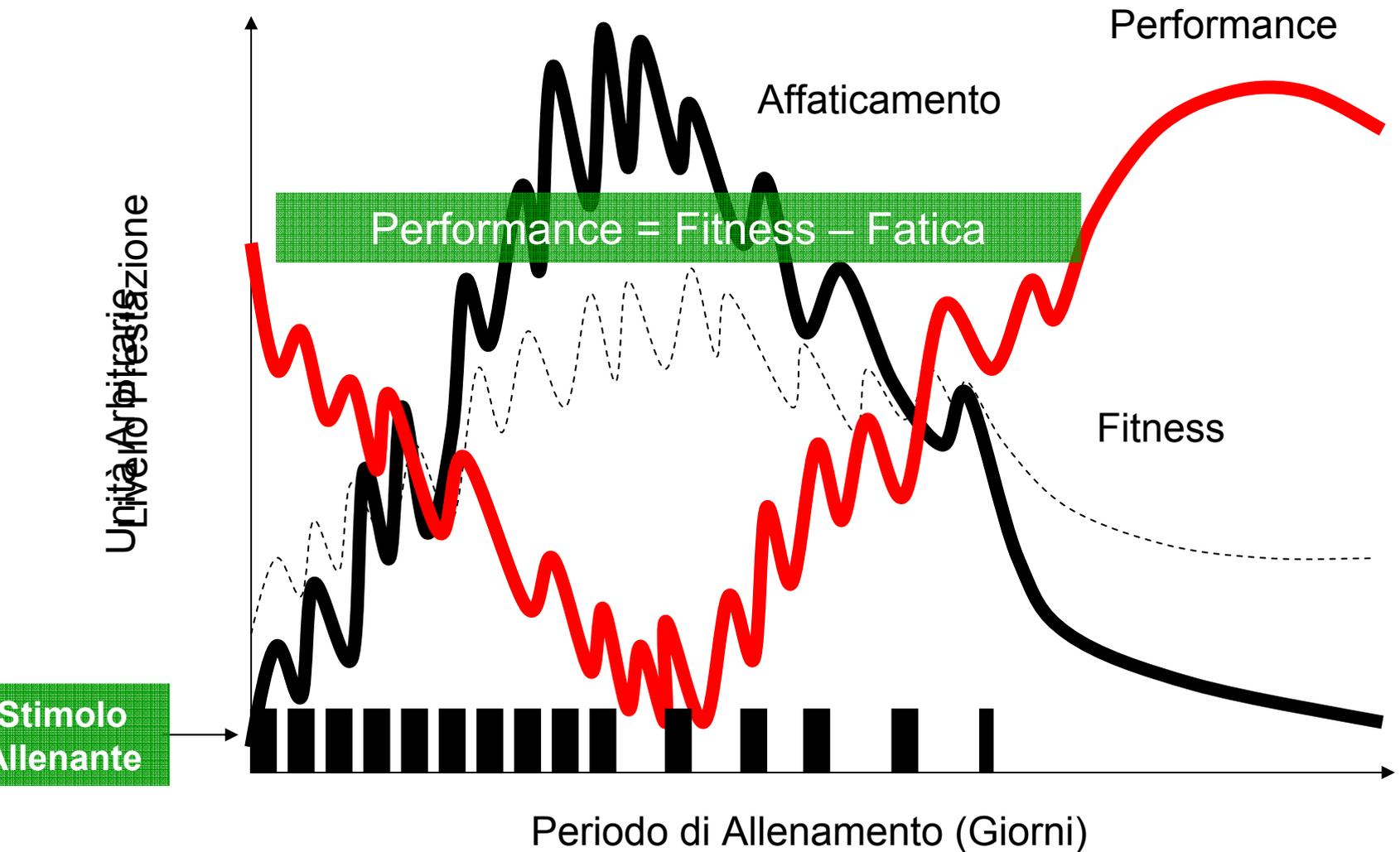
Extraneous Activity



Bannister et al. (1975)

Emotional Factors

Risposta Allenante



Journal of Sports Sciences, 2009; 1–8, *iFirst* article



INVITED COMMENTARY

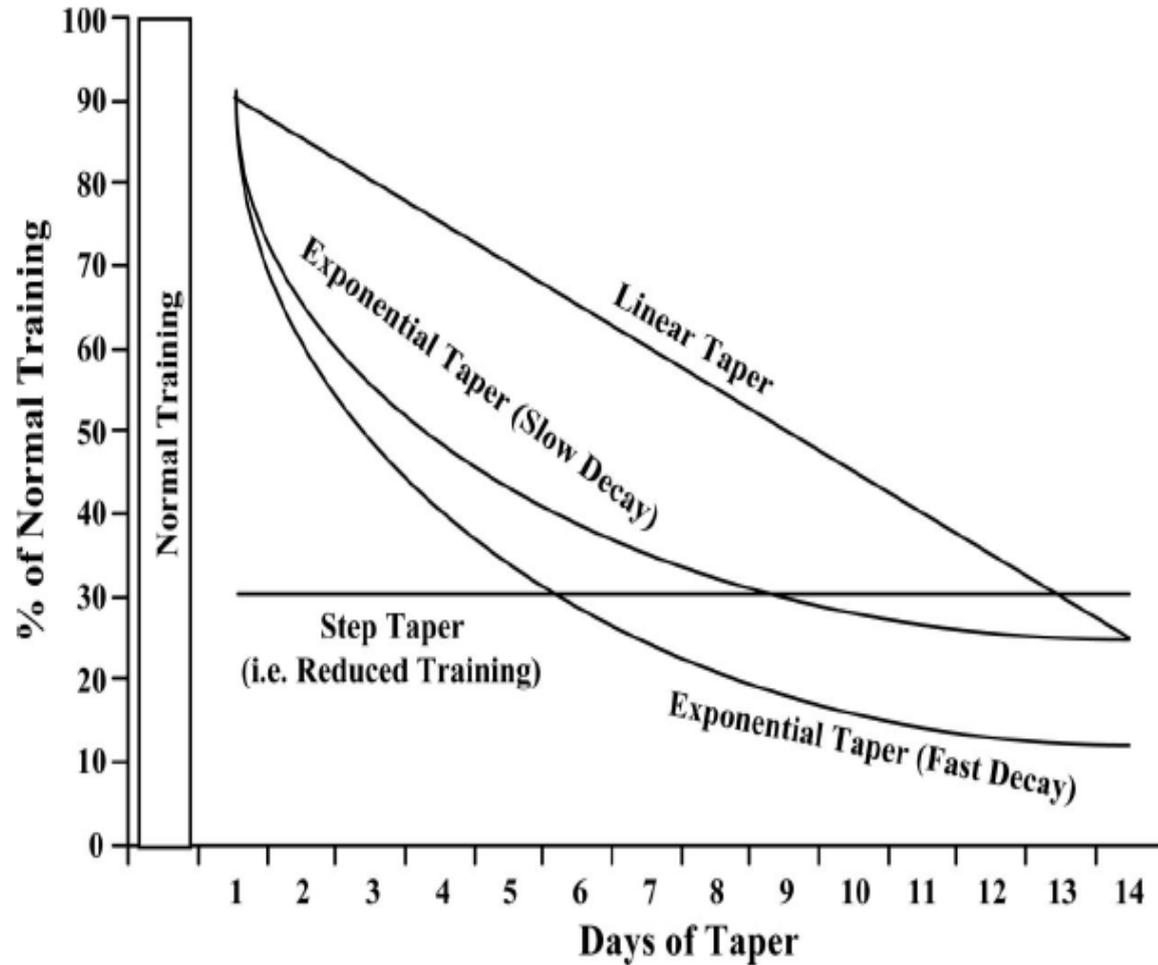
Peaking for optimal performance: Research limitations and future directions

DAVID B. PYNE¹, IÑIGO MUJICA^{2,3}, & THOMAS REILLY⁴

¹*Department of Physiology, Australian Institute of Sport, Canberra, Australia,* ²*Department of Physiology, Faculty of Medicine and Odontology, University of the Basque Country, Basque Country, Spain,* ³*USP – Araba Sport Clinic, Vitoria-Gastiez, Basque Country, Spain, and* ⁴*Research Institute for Sport and Exercise Sciences, Liverpool John Moores University, Liverpool, UK*

(Accepted 26 September 2008)

Tapering



Tapering

Tapering

Table I. Effects of moderator variables on effect size for taper-induced changes in performance.

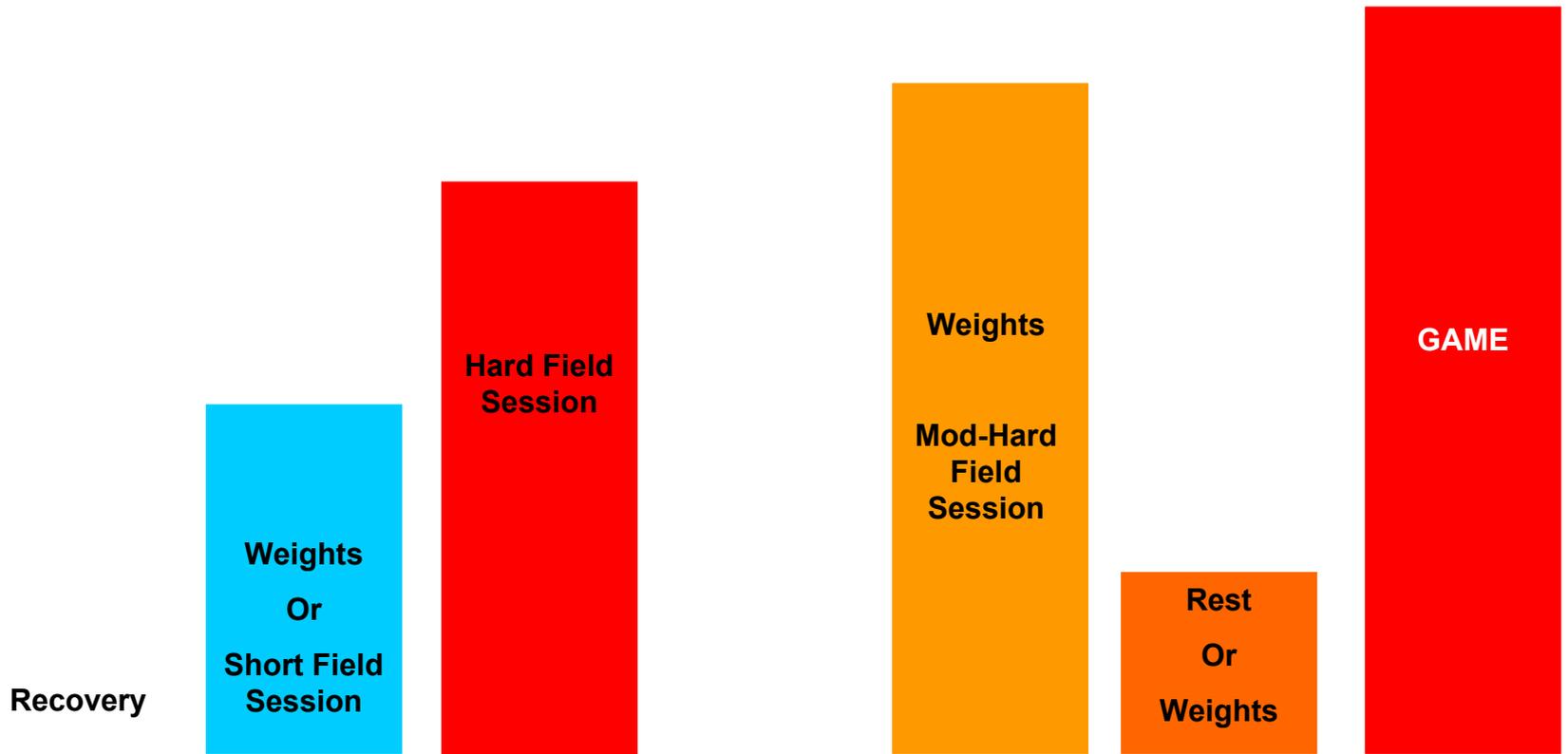
Categories	Effect size ^a ± 95% CI	P-value
Decrease in training volume		
< 20%	-0.02 ± 0.30	0.88
21-40%	0.27 ± 0.23	0.02
41-60%	0.72 ± 0.36	0.0001
> 60%	0.27 ± 0.30	0.07
Decrease in training intensity		
Yes	-0.02 ± 0.35	0.91
No	0.33 ± 0.14	0.0001
Decrease in training frequency		
Yes	0.24 ± 0.27	0.08
No	0.35 ± 0.17	0.0001
Duration of the taper		
< 7 days	0.17 ± 0.22	0.14
8-14 days	0.59 ± 0.23	0.0005
15-21 days	0.28 ± 0.30	0.07
> 22 days	0.31 ± 0.45	0.18
Pattern of the taper		
Step taper	0.42 ± 0.53	0.12
Progressive taper	0.30 ± 0.14	0.0001

Notes: ^aEffect size: trivial < 0.2; small 0.2-0.6; moderate 0.6-1.2.
Reproduced with permission from Bosquet et al. (2007).



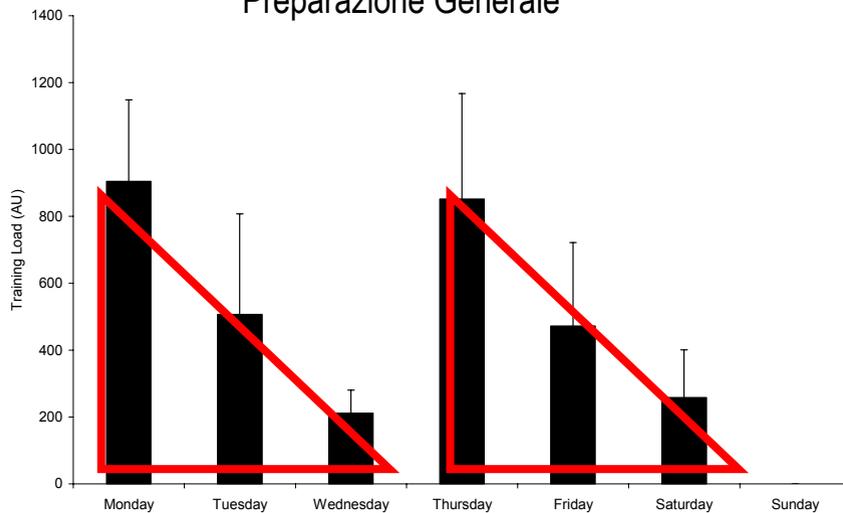
Tapering

Ciclo Settimanale di Allenamento

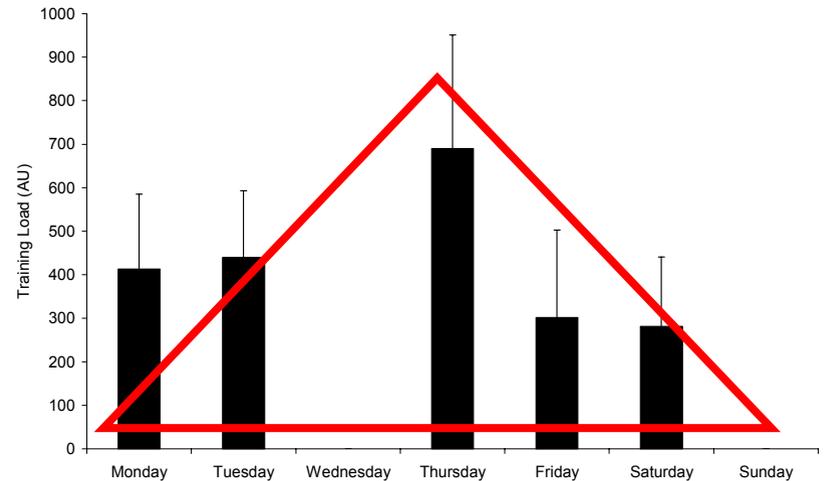


Controllo Periodizzazione

Preparazione Generale



Competizione



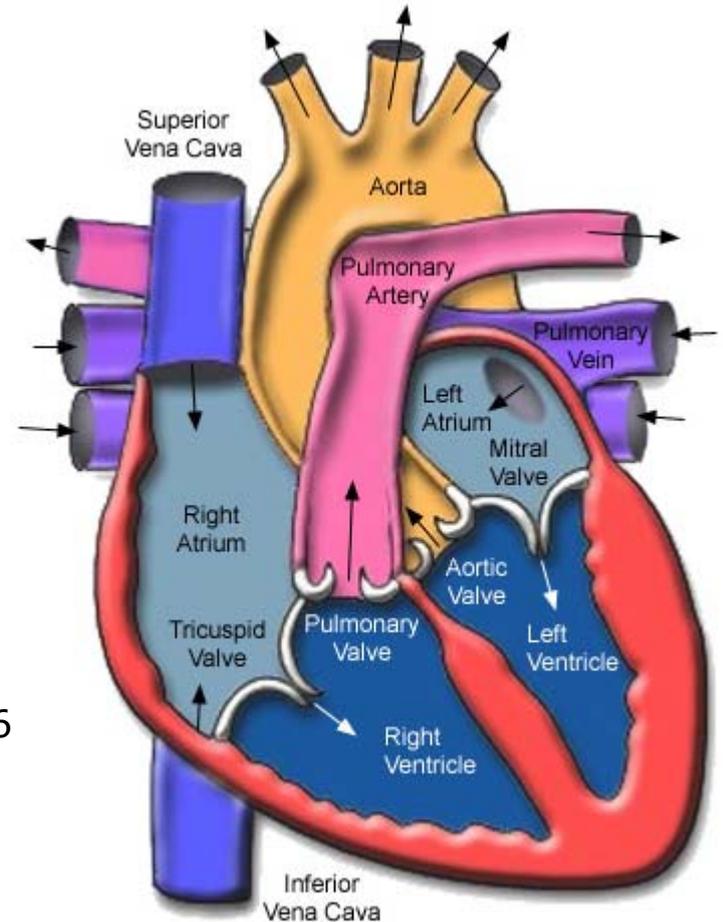
Frequenza Cardiaca



HR Zones

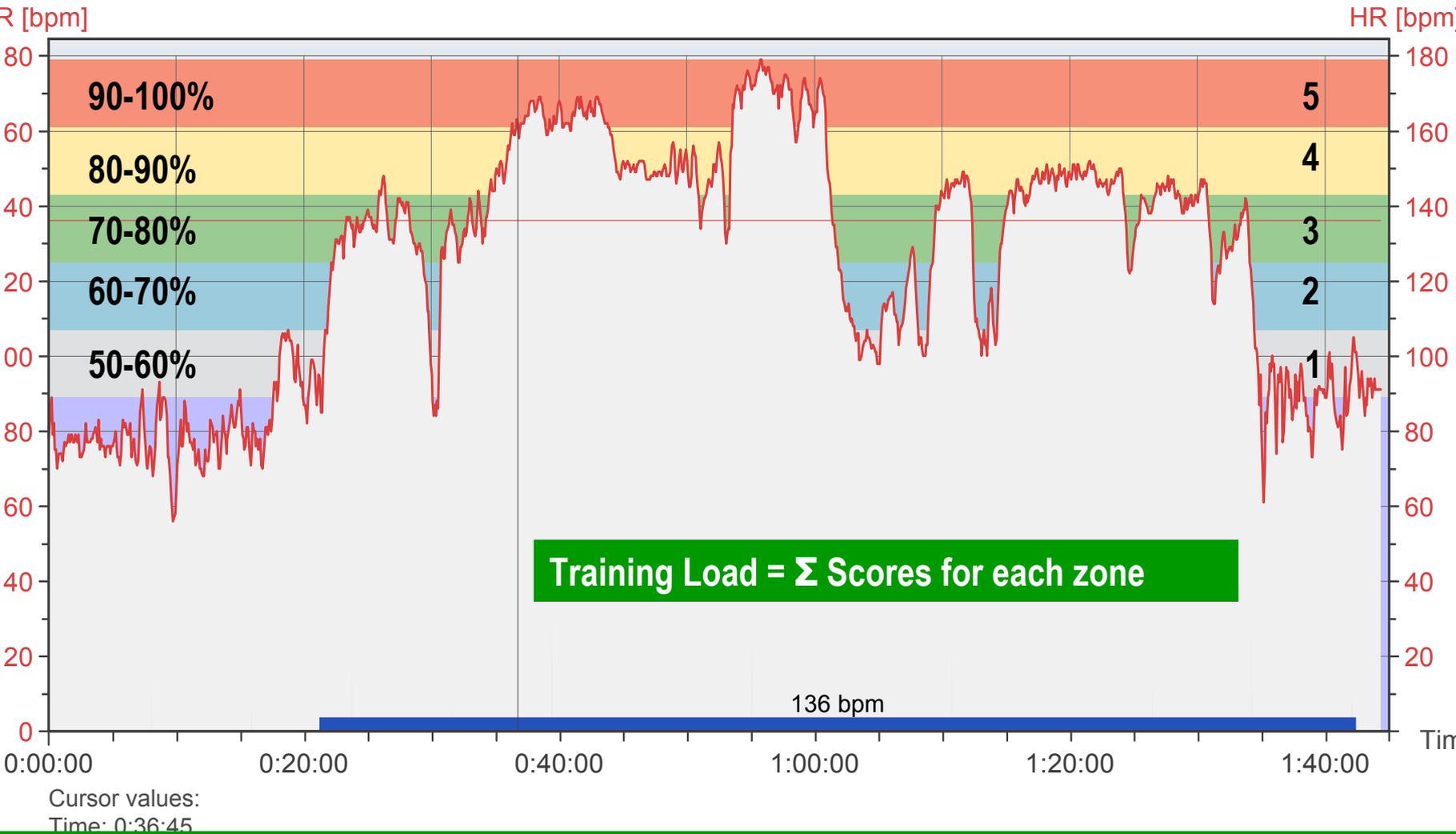
90-95% HRmax

Helgerud et al 2001, Impellizzeri et al 2006

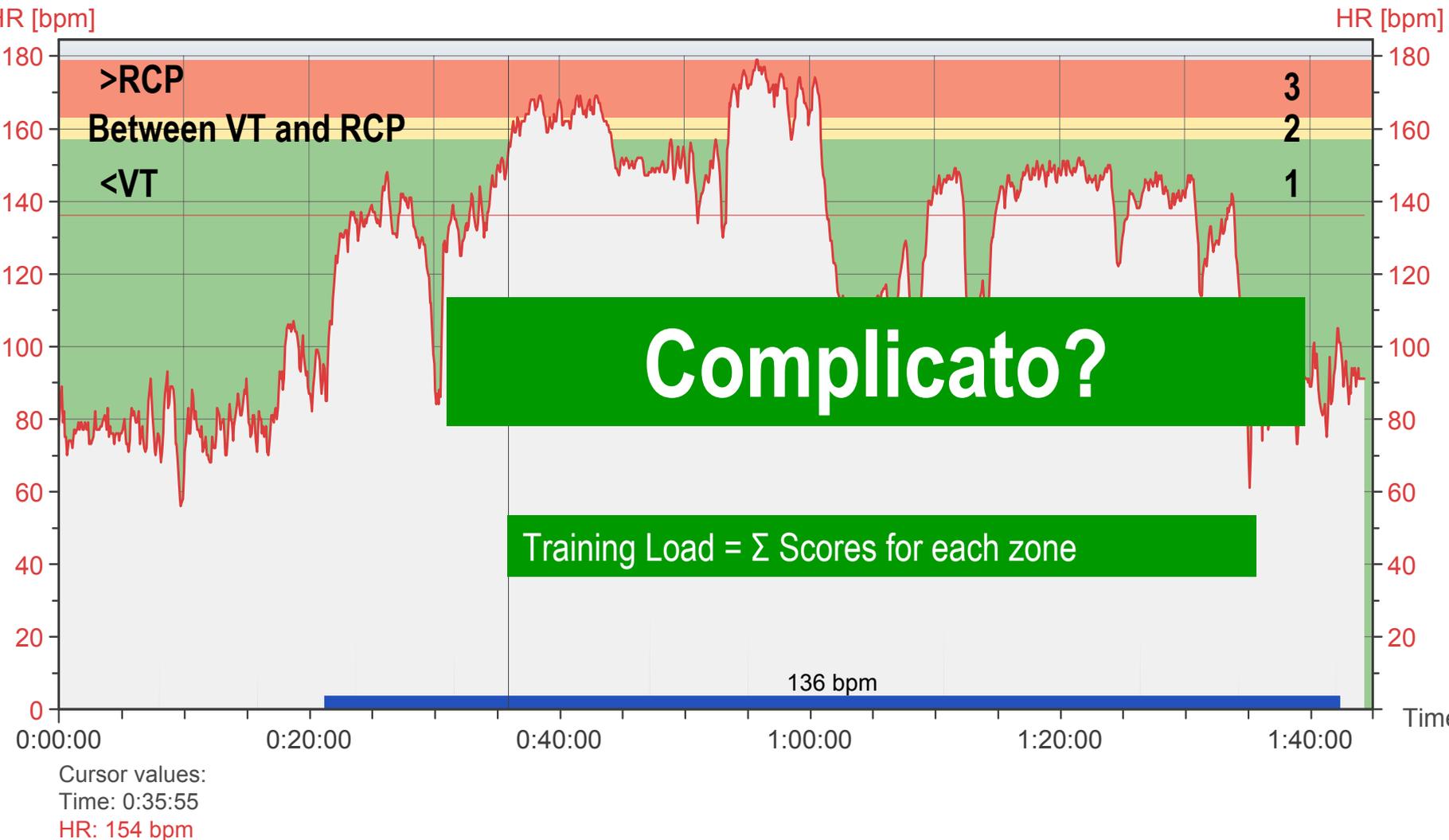


Controllo dell'allenamento

Carico Interno: Edwards HR Method



Carico Interno: Lucia 3 Zone HR Method



Metodiche per la Monitorizzazione del Carico di Allenamento

$$\text{Carico} = \text{Volume (min)} \times \text{Intensità}$$

Volume Allenamento

- Tempo (min)
- Distanza (km)

Intensità Allenamento

- Frequenza Cardiaca
- Consumo di Ossigeno
- Concentrazione Lattato
- Rating of Perceived Exertion

Qual'è il più pratico?

The Session-RPE method

Determinazione Session-RPE:

- ⚽ Chiedi ai giocatori di valutare il loro carico di lavoro su una scala da 0 a 10 dopo 30 minuti di allenamento.

Esempio:

RPE = 5

Calcolare: Durata = 40 min

⚽ RPE = 5
Carico = 5 X 40 = 200 AU'

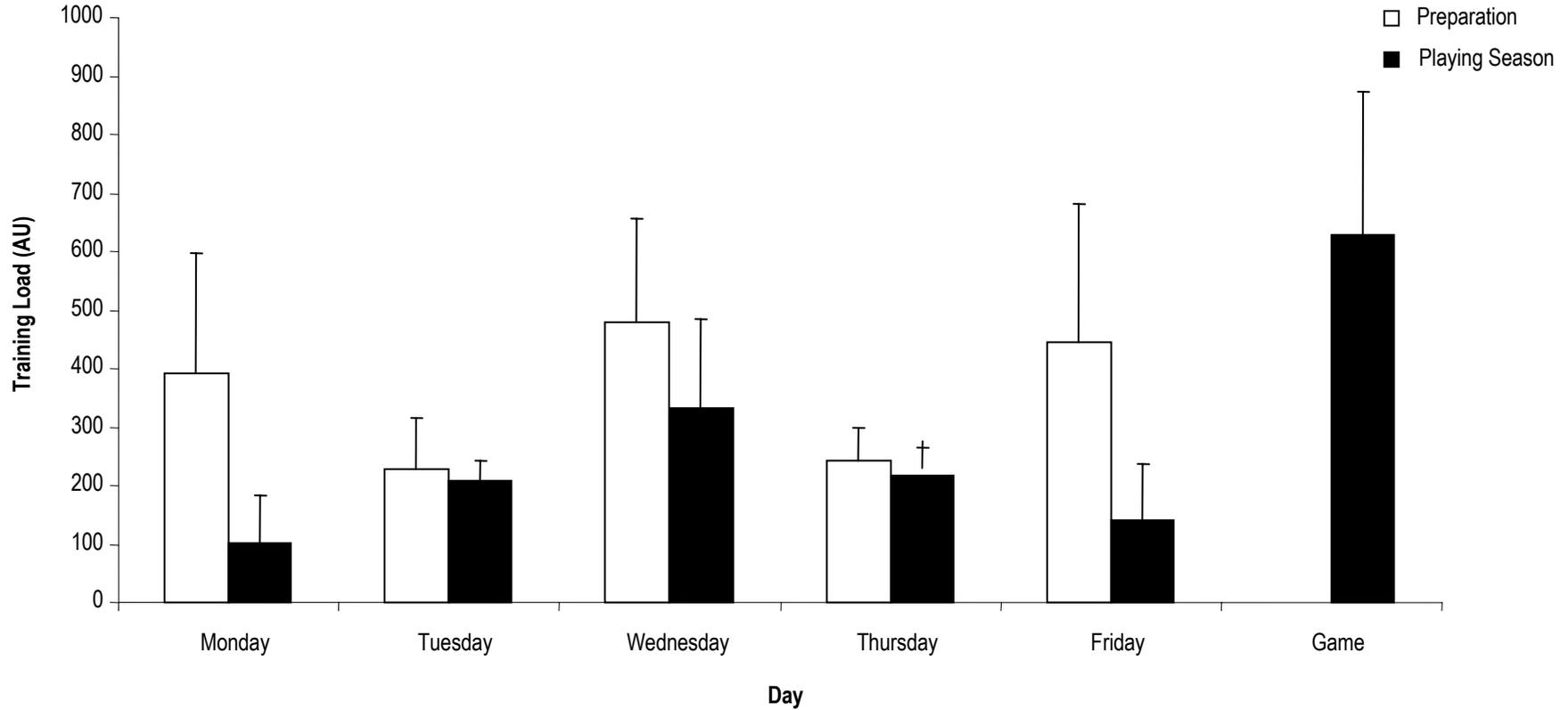
⚽ Carico di Allenamento = durata x RPE

⚽ Monotonia = carico sett. / DS carico sett.
(variazione)

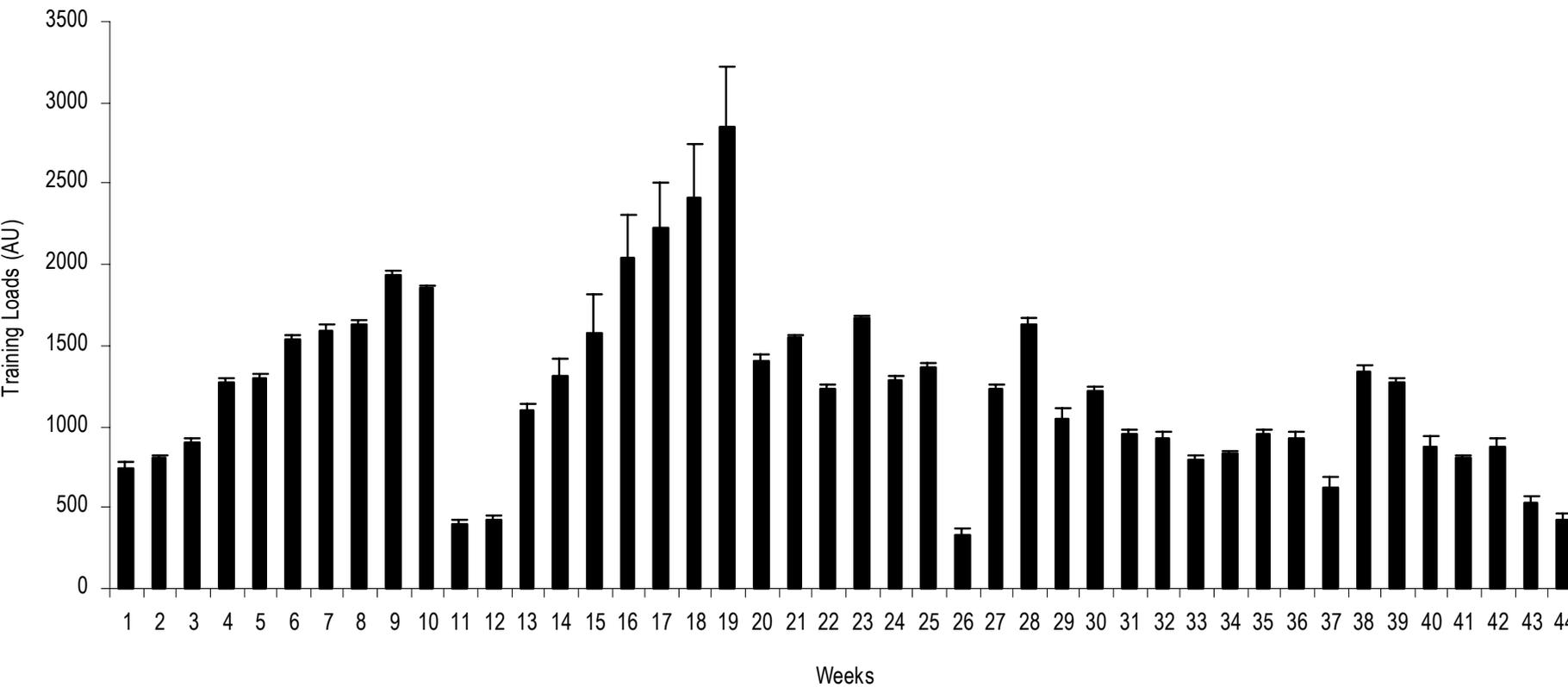
⚽ Sollecitazione = monotonia x carico (overreaching)

Punto	Descrittore
0	Riposo
1	Molto, Molto Facile
2	Facile
3	Moderato
4	Quasi Duro
5	Duro
6	
7	Molto Duro
8	
9	
10	Massimale

Profilo Settimanale



Carico Annuale

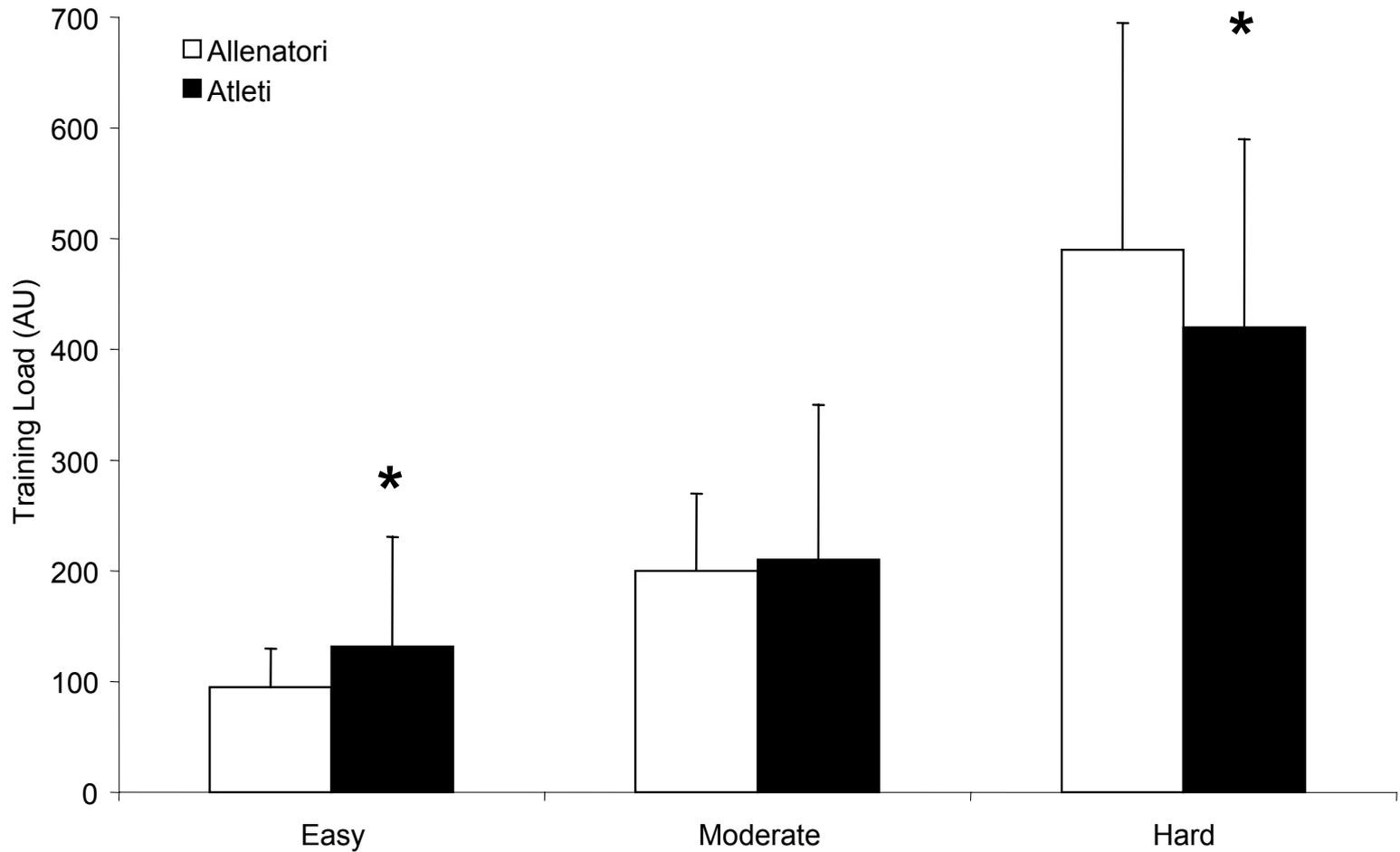


Esempi Pratici di Session-RPE

Applicazioni della Session-RPE:

- Monitorare la Periodizzazione & Feedback sull'Allenamento
- Affaticamento Atleta?
- Profili Settimanali del Carico
- Periodizzazione Annuale
- Programmazione Recupero
- Analisi Percezione Allenatore vs. Atleta

Percezione Allenatori vs. Atleti



■ **Session RPE**

Impellizzeri e coll. 2004

■ **TRIMPS**

Banister 1986

■ **HR Zones**

Edwards 1993

Banister TRIMP

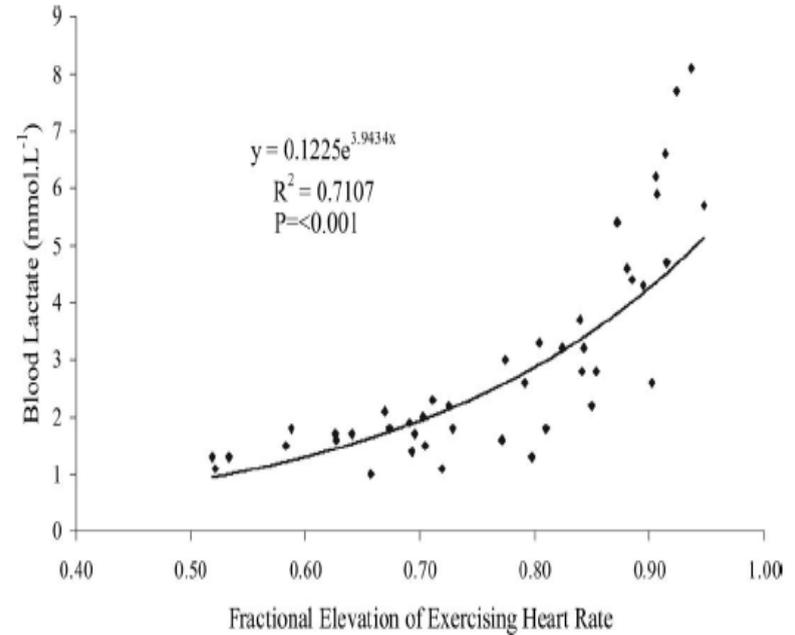
Banister 1986

TRIMP

$$\sum_{i=1}^n t_i = D \sum_{i=1}^n (\Delta HR_r)_i \cdot y_i$$

$$\Delta HR_r = \frac{HR_i - HR_{rest}}{HR_{max} - HR_{rest}}$$

$$y_i = B \cdot e^{C (\Delta HR_r)_i}$$



Controllo Allenamento

Training Load

Manzi et al 2009 JSCR

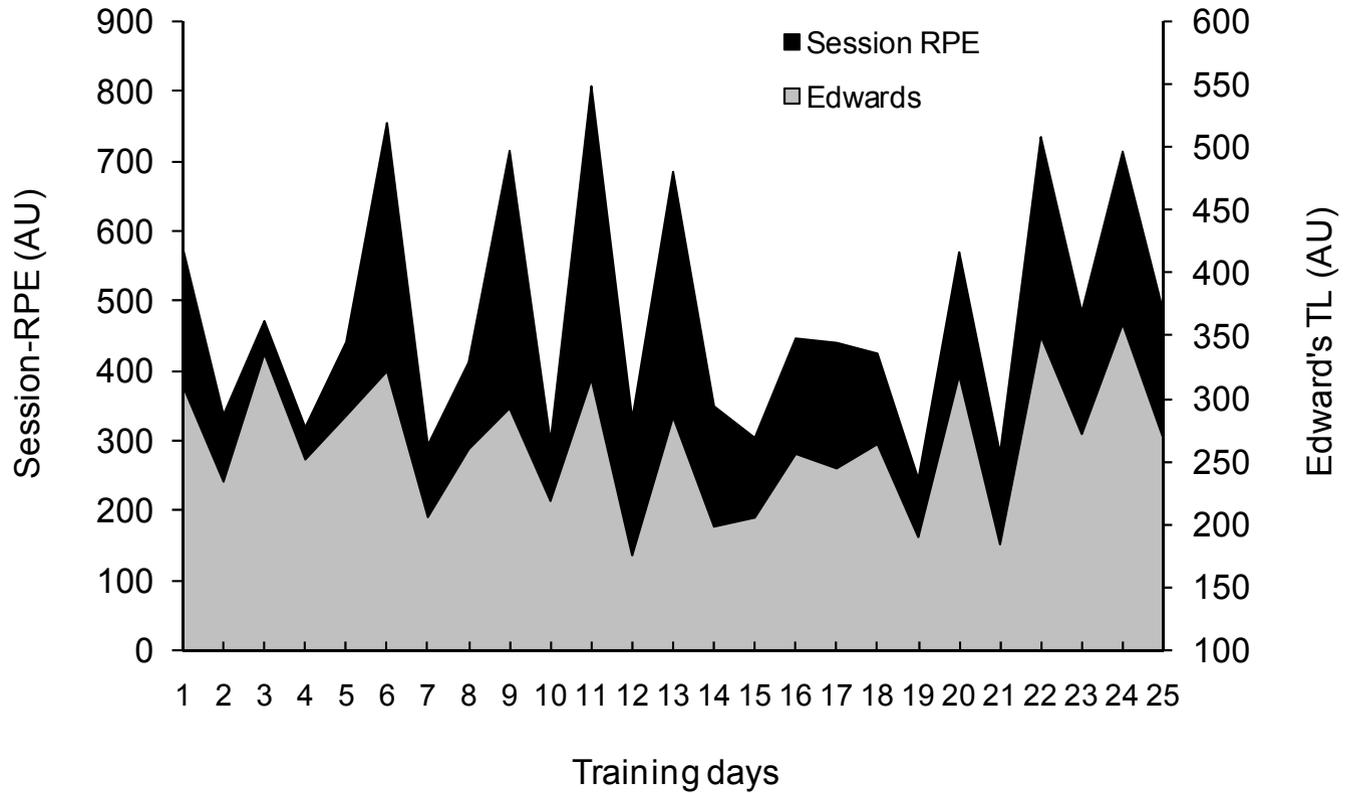
Training Activity

Table 1.

Day	No Game	1 Game	2 Games
Monday	Technical/Tactical	Rest	Rest
Tuesday	Strength training + Technical	Strength training + Technical	Explosive weights + Technical
Wednesday	Technical/Tactical	Technical/Tactical	Tactical
Thursday	Explosive weights + Technical	Explosive weights + Technical	Game
Friday	Technical/Tactical	Technical/Tactical	Tactical
Saturday	Tactical	Tactical	Technical/Tactical
Sunday	Rest	Game	Game
Weekly load	3334	2928	2791
Monotony (mean weekly load / SD)	1,70	1,59	1,62
Strain (load x monotony)	5678	4666	4534

Basket

Training Load

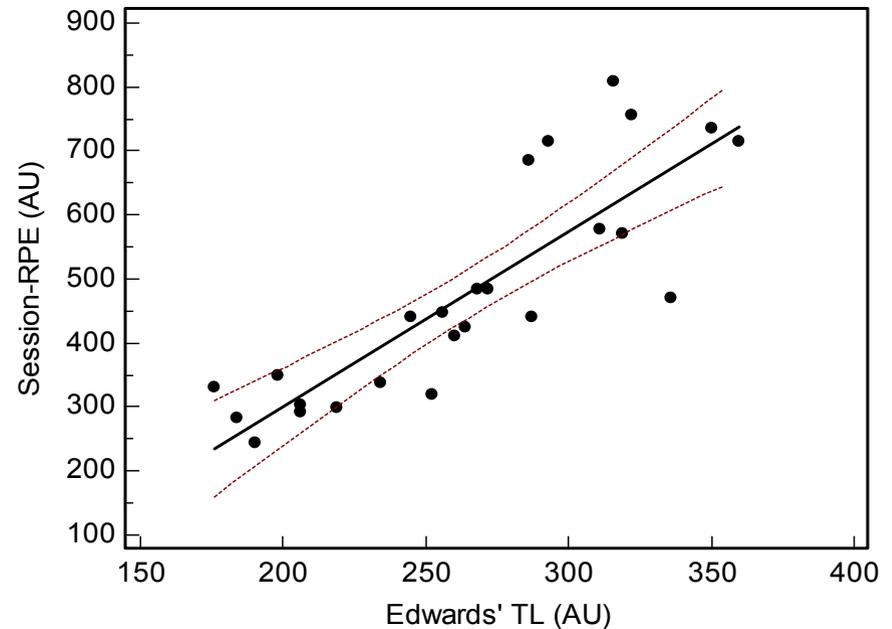


Manzi et al 2009 JSCR

Basket

Training Load

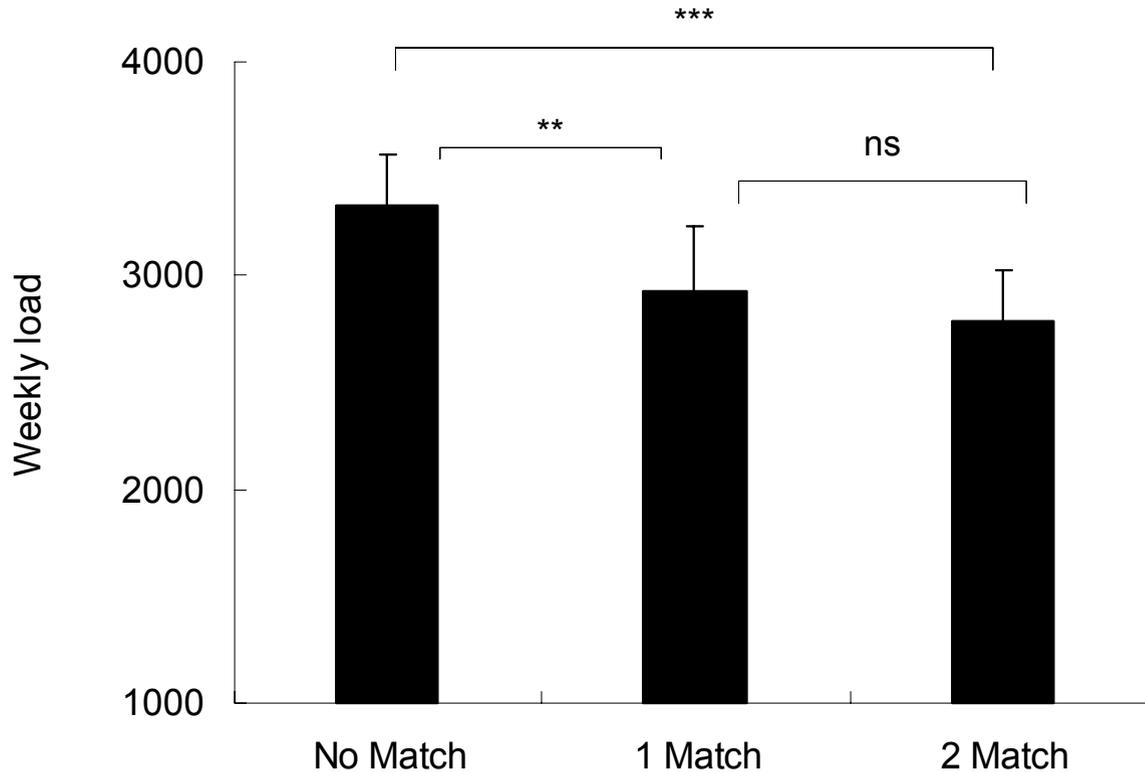
Edwards' TL vs Session-RPE TL			
r	CI (95%) Upper - Lower	P <	Effect size
0.85	(0,93 - 0,68)	0.0001	0.64



Manzi et al 2009 JSCR

Basket

Training Load

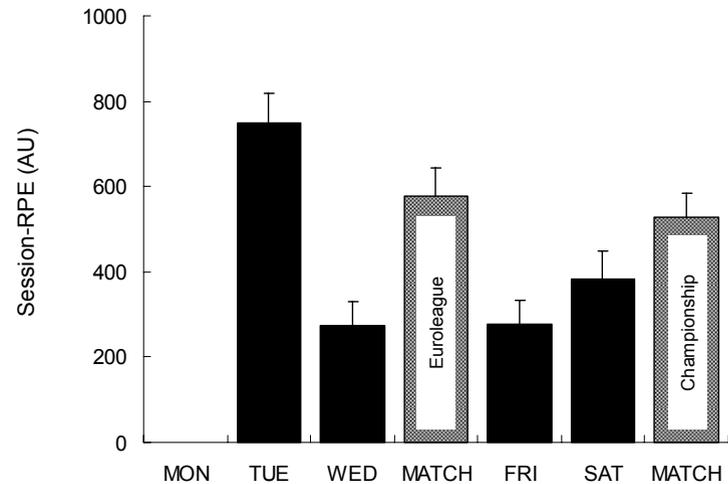
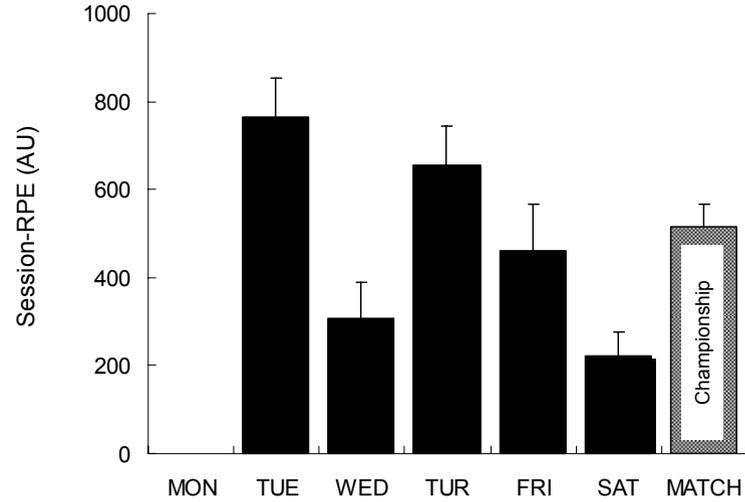
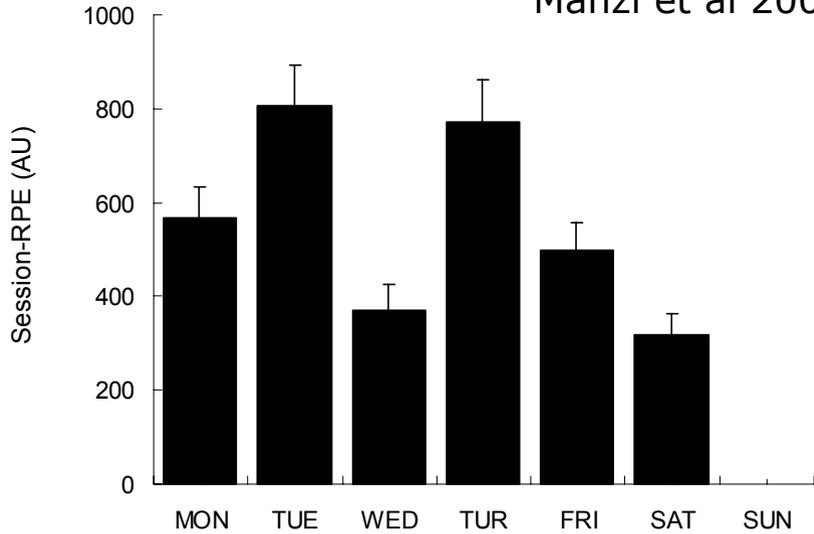


Manzi et al 2009 JSCR

Basket

Training Load

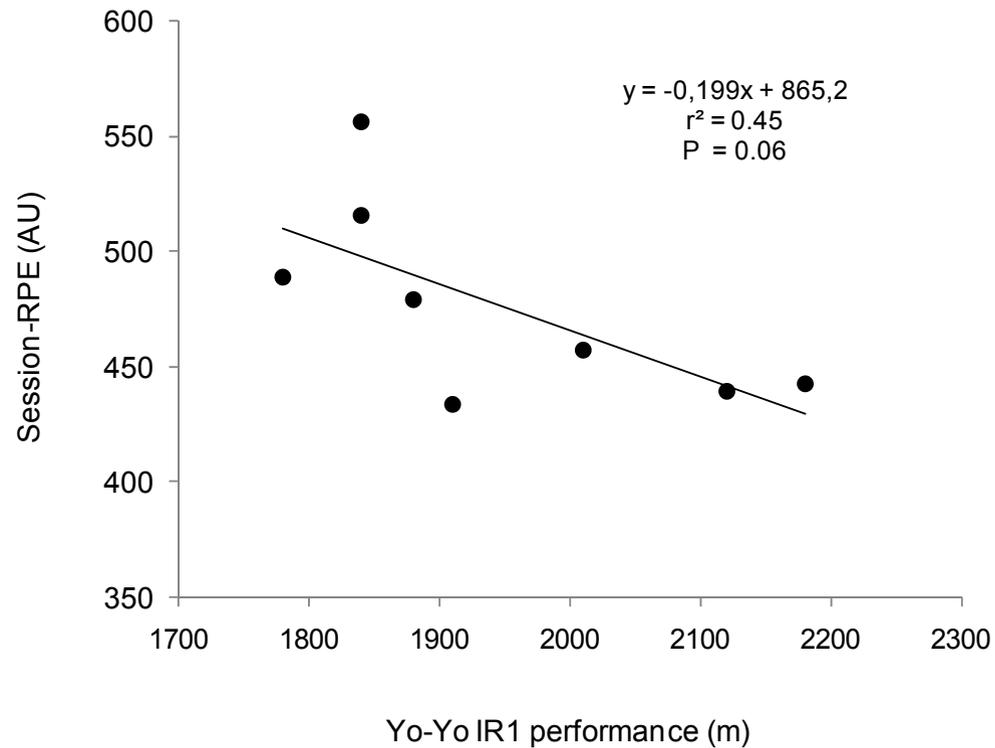
Manzi et al 2009 JSCR



Basket

Training Load

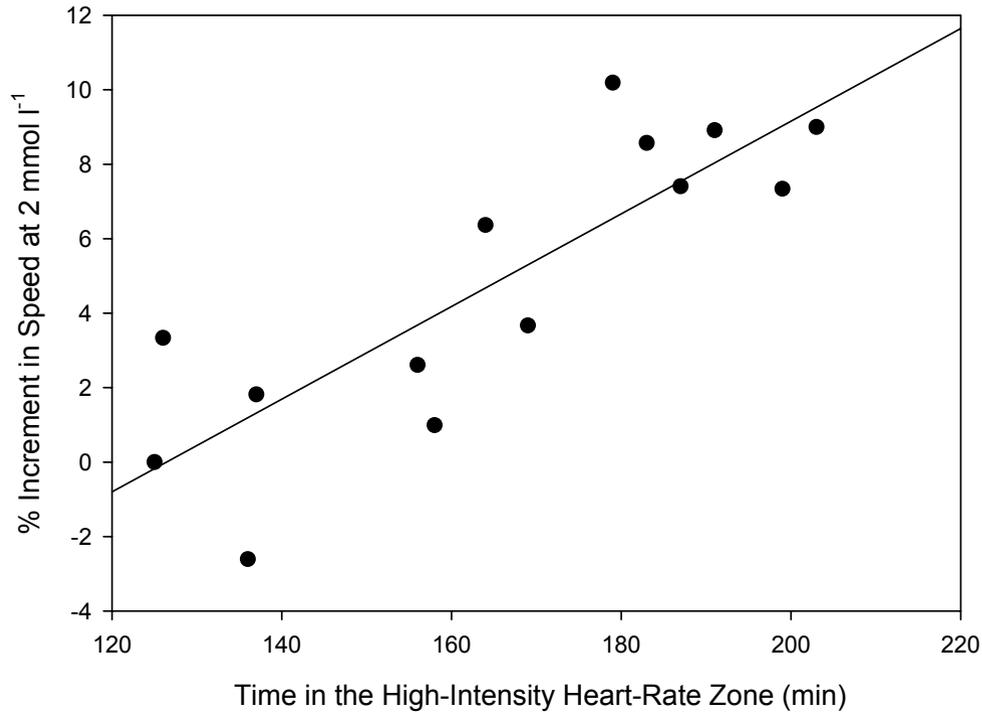
Manzi et al 2009 JSCR



Basket

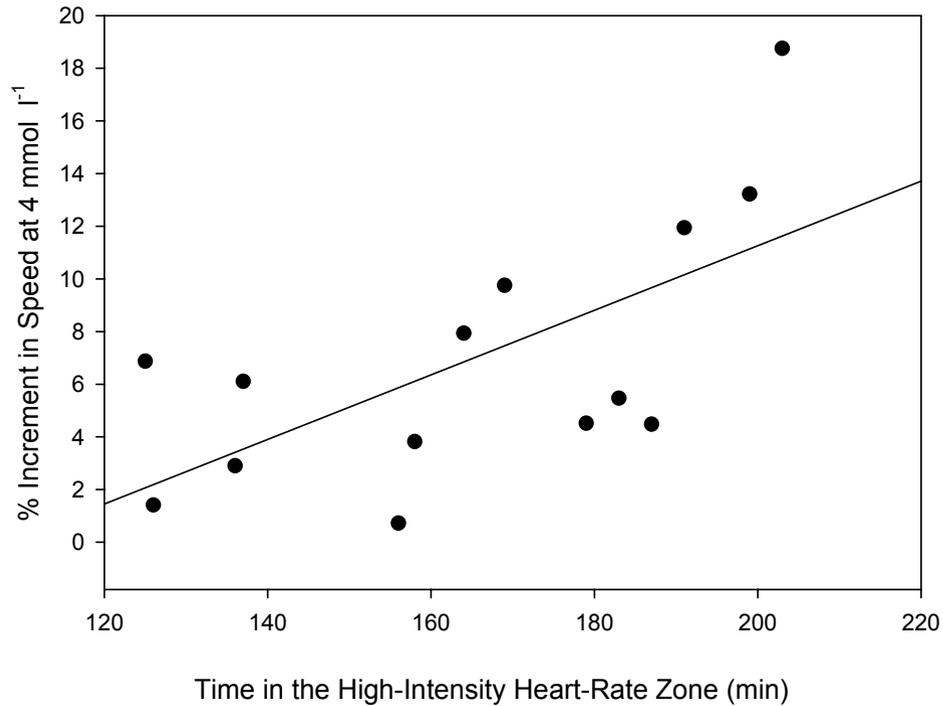
Training Load

Castagna et al 2009



Training Load

Castagna et al 2009



Controllo Allenamento

Scand J Med Sci Sports 2006; 16: 49–56
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DOI: 10.1111/j.1600-0838.2004.00418.x

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SCANDINAVIAN JOURNAL OF
MEDICINE & SCIENCE
IN SPORTS

Quantifying training intensity distribution in elite endurance athletes: is there evidence for an “optimal” distribution?

K. Stephen Seiler, Glenn Øvrevik Kjerland

Department of Health and Sports, Agder University College, Kristiansand, Norway
Corresponding author: Stephen Seiler, PhD, Institute for Sports, Department of Health and Sports, Agder University College,
Service Box 422, 4604 Kristiansand, Norway. Tel: + 47 3814 1347, Fax: + 47 3814 1301, E-mail: Stephen.Seiler@hia.no

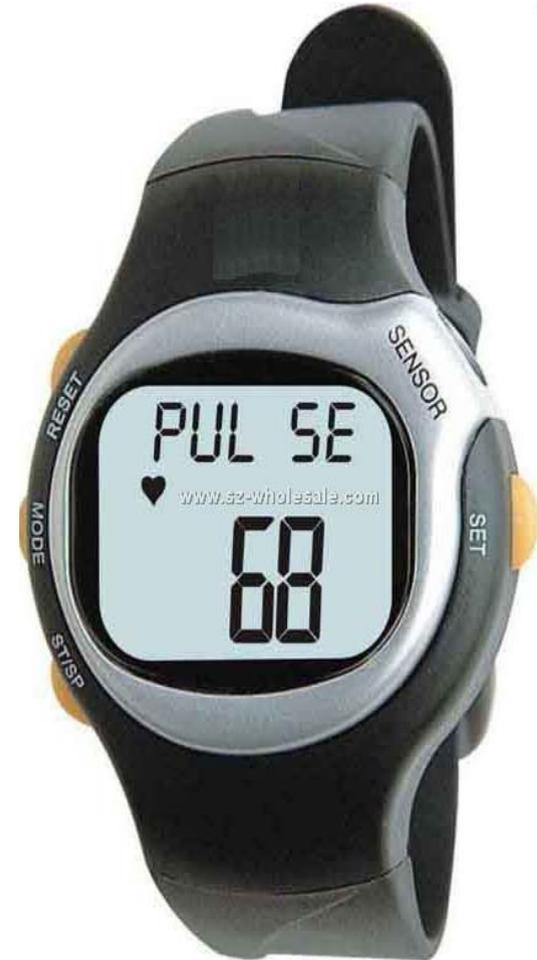
Accepted for publication 21 June 2004

Physical Fitness and Performance

How Do Endurance Runners Actually Train? Relationship with Competition Performance

JONATHAN ESTEVE-LANAO¹, ALEJANDRO F. SAN JUAN¹, CONRAD P. EARNEST², CARL FOSTER³, and
ALEJANDRO LUCIA¹

¹*Exercise Physiology Laboratory, European University of Madrid, SPAIN;* ²*Cooper Institute Center for Human*
Performance and Nutrition Research, Dallas, TX; and ³*University of Wisconsin-La Crosse, La Crosse, WI*



Controllo Allenamento

Controllo Allenamento

%HR Zones

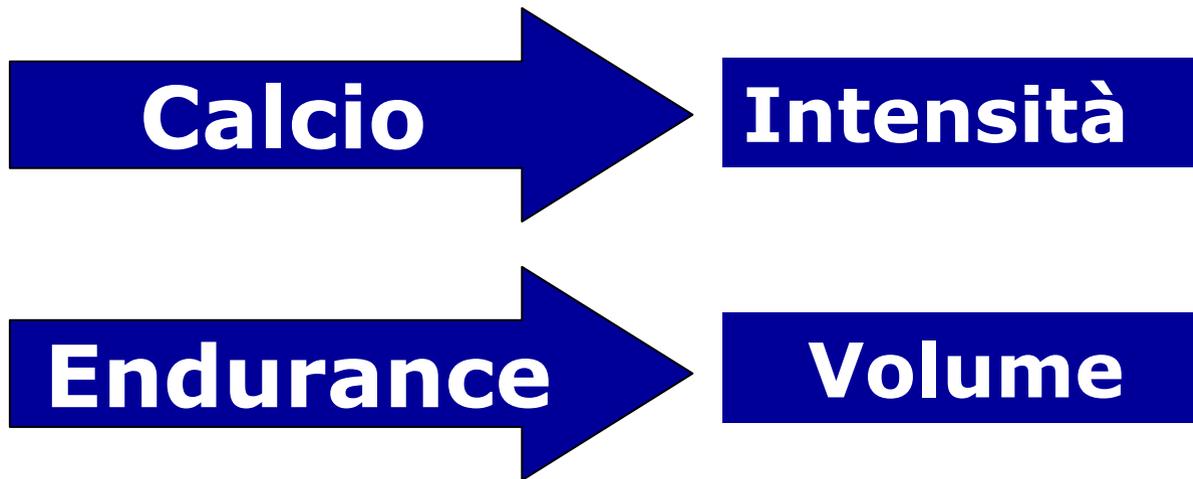
	Low	Medium	High
Sci Fondo	91	6.4	2.6
Fondo	71	21	8
Calcio	73	19	8

Seiler et al 2006
Esteve-Lanao et al 2004
Castagna et al 2008

Profiling

Carico vs Performance

Allenamento Polarizzato



Profiling

Il Controllo dell'Allenamento: Strumenti per l'Allenatore



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