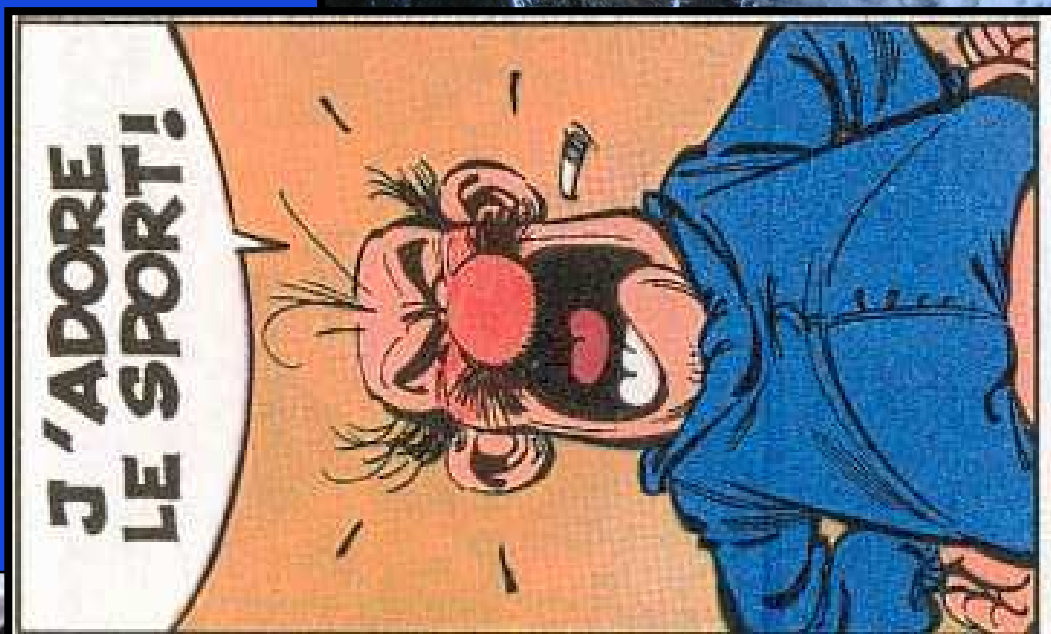


Il recupero nell' allemanento

Jean-Claude Chatard
chatard@univ-st-etienne.fr



BIOLOGY AND SPORT MEDICINE

Biomechanics and Medicine in Swimming



Edited by Jean-Claude CHATARD
Publications de l'Université de Saint-Etienne

BIOLOGIE ET MÉDECINE DU SPORT

Sport & Santé

Quelle activité pour...

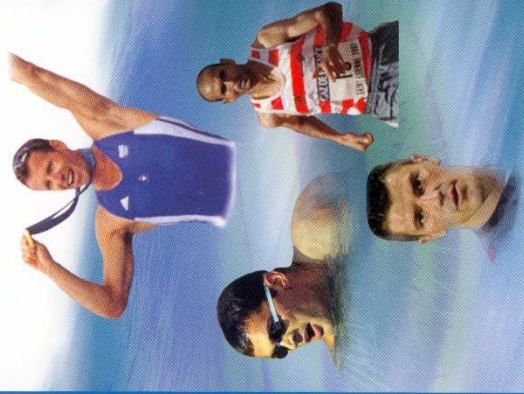


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BIOLOGIE ET MÉDECINE DU SPORT

Lutter contre le Dopage la Récupération Physique



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JEAN CHATARD

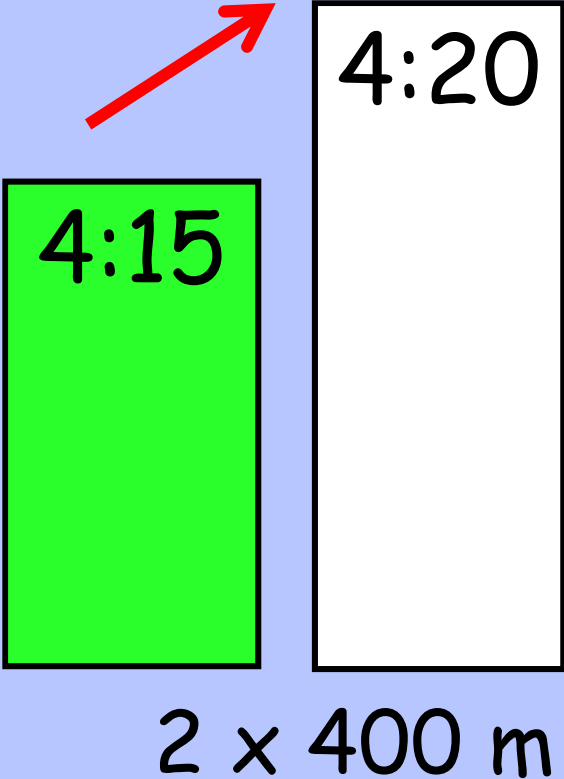


ALLENAMENTO E RECUPERO

IL PRIMO LIBRO DI SCIENZA DELLO SPORT E DELLA RECUPERO



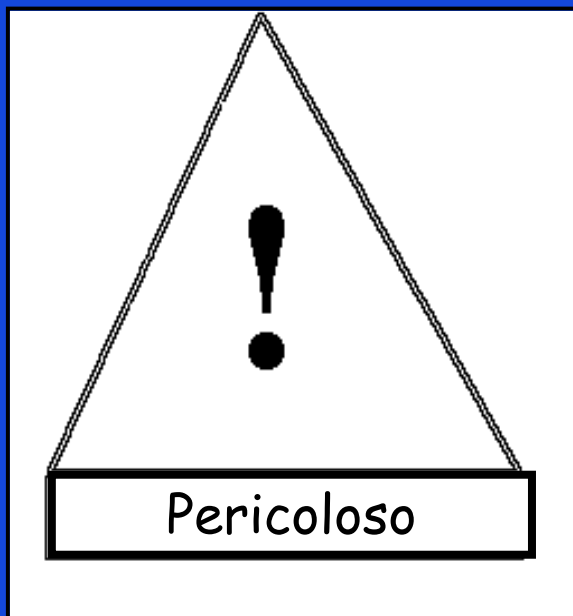
30 min recupero



FC e il recupero

Orologio facile, qualità +++

Equilibrio orto e para simpatico...



Fatica

Para

Orto

FC bassa
HypoTA

FC elevata
HyperTA

-

+

AC



Nora

Equilibrio orto - parasimpatico

FC di riposto

80
bpm

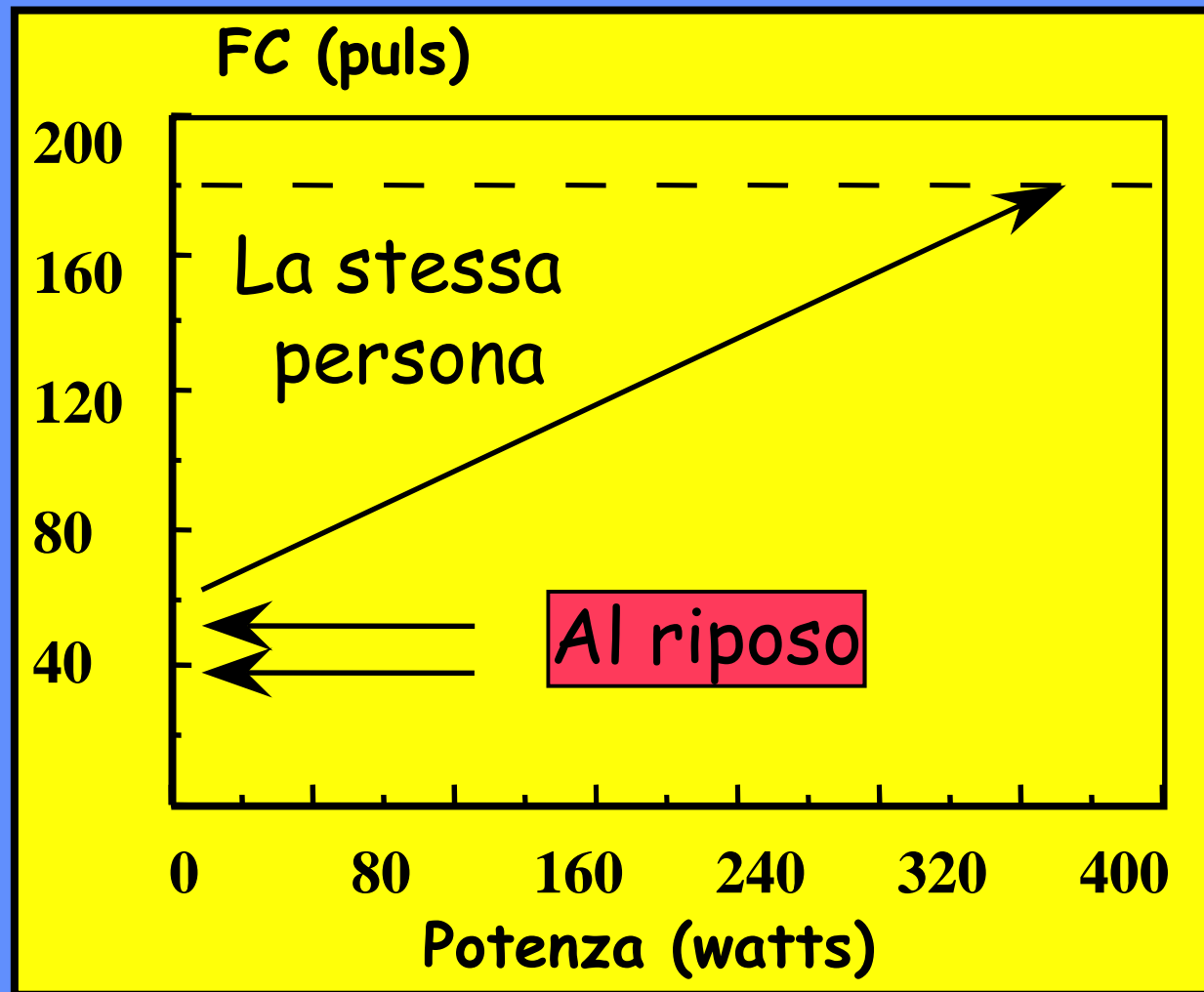
50
bpm

Sedentario

Sportivo

FC di riposto e performance : No relazione

36 non e meglio che 40 bpm



FC di riposto

80
bpm

50
bpm

40
bpm

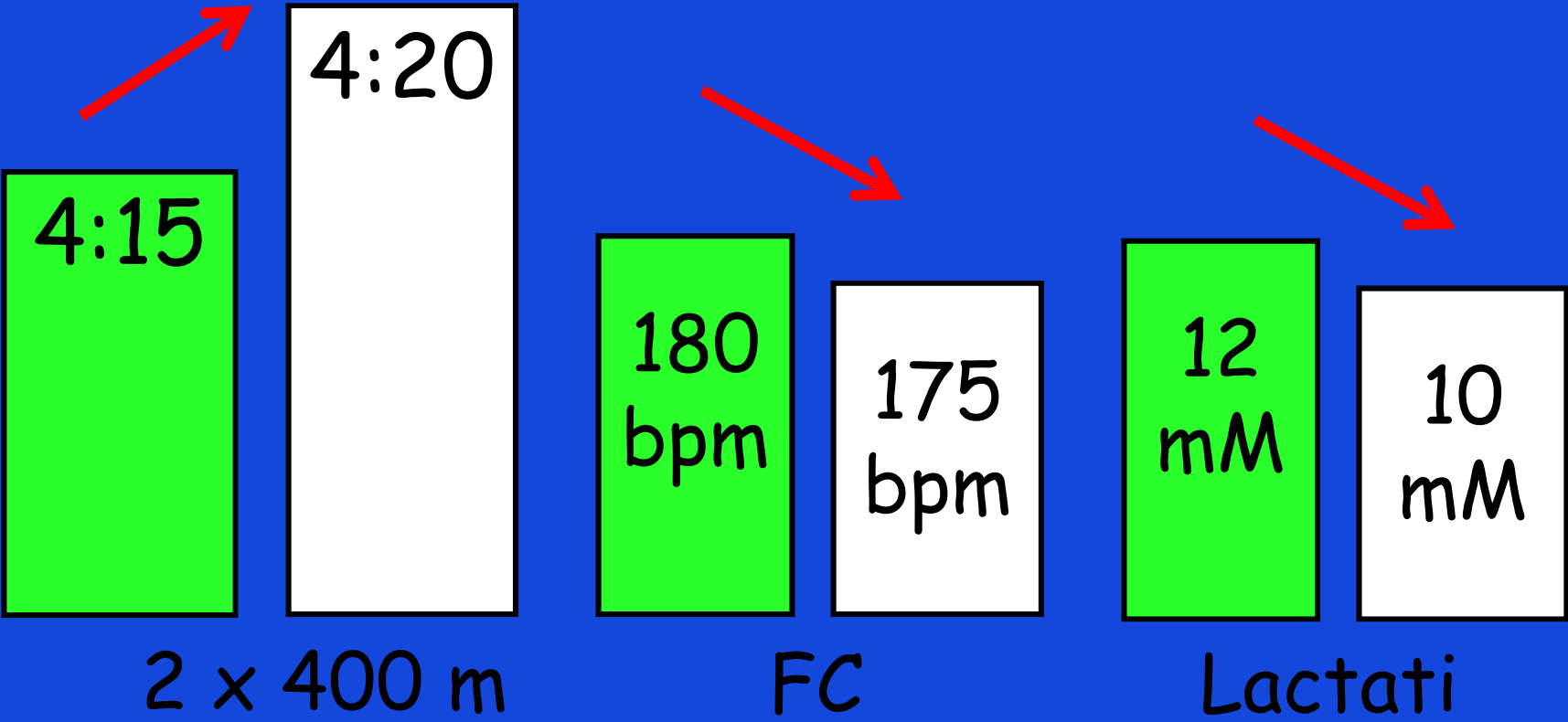
Sedentario

Sportivo

Sovranellato

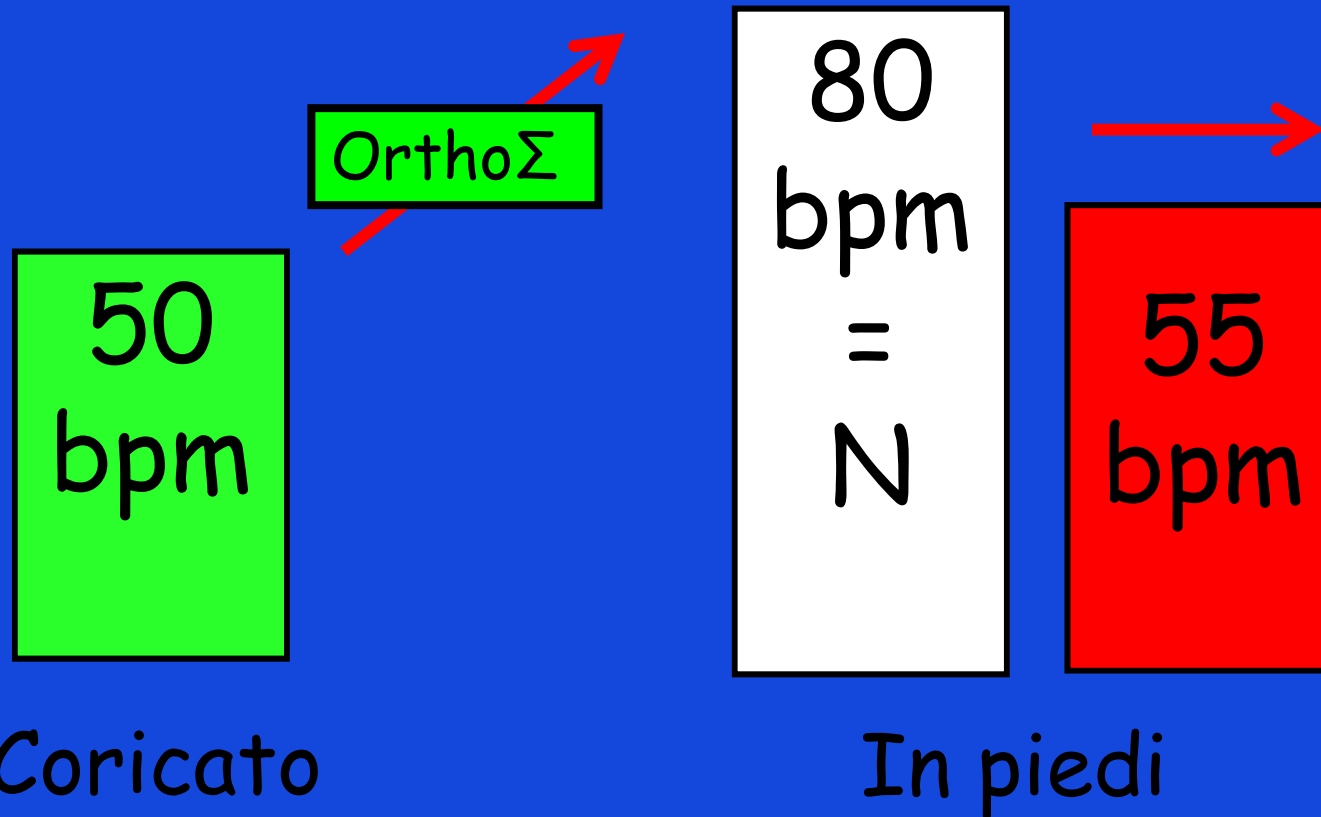
Fatica parasimpatica

30 min recupero



Fatica parasimpatica

Ortostatismo test



Fatica parasimpatica : abbassamento della pressione arteriosa

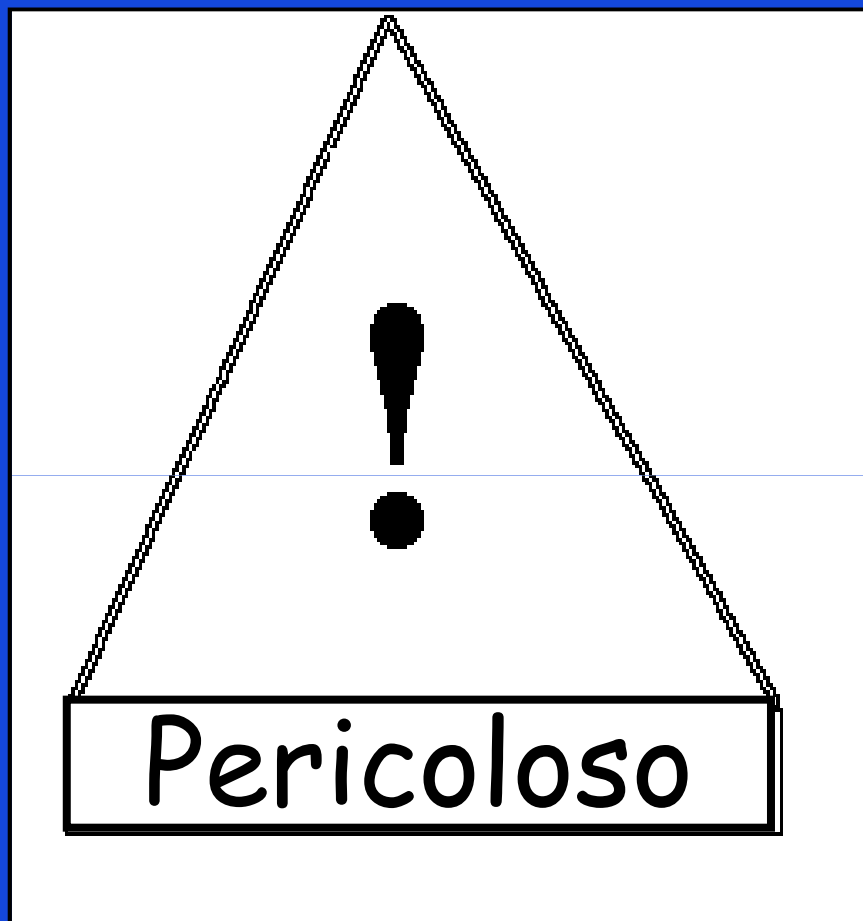
FC di riposo e performance



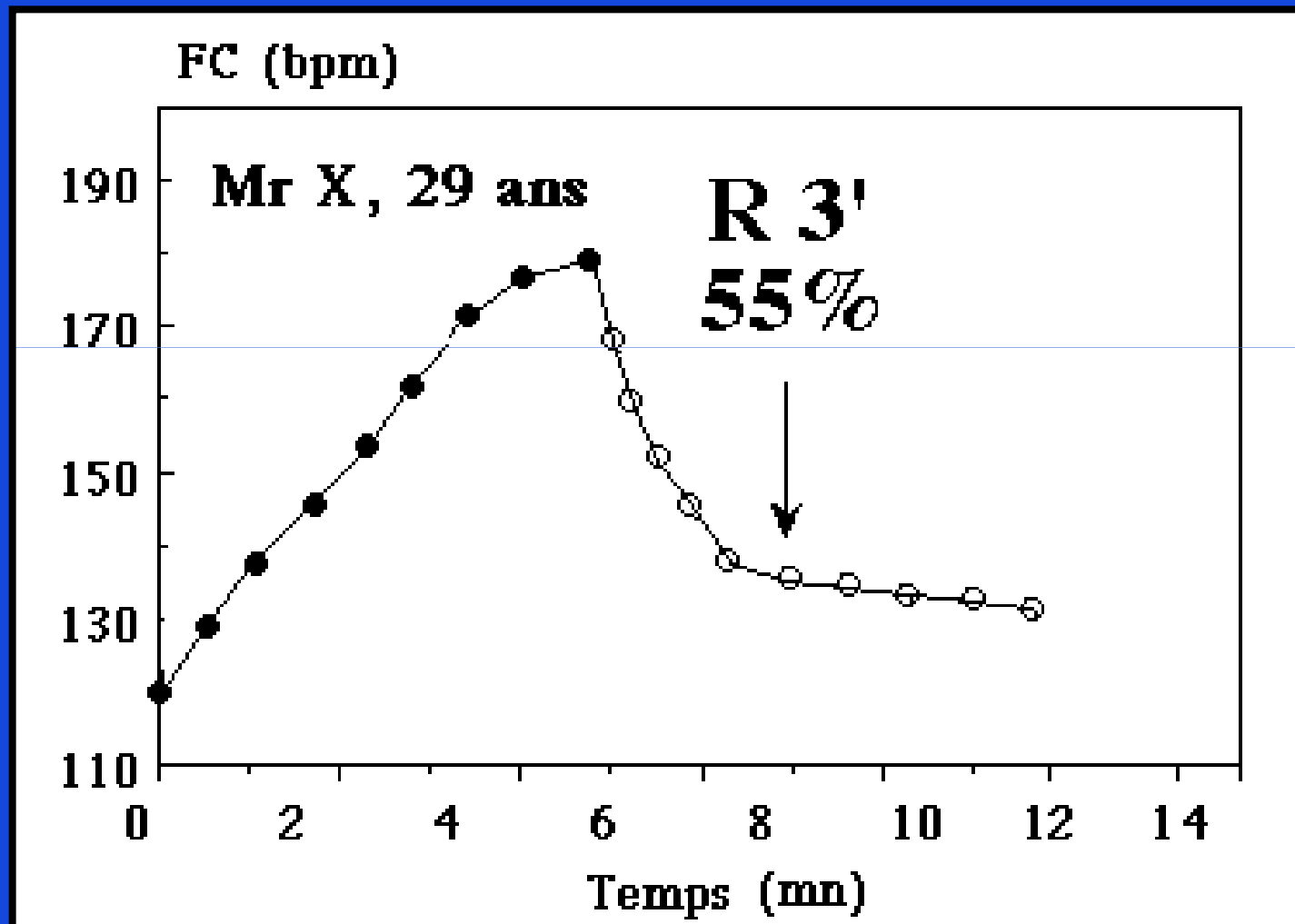
No relazione

Hooper et al. 1998 Sports Med

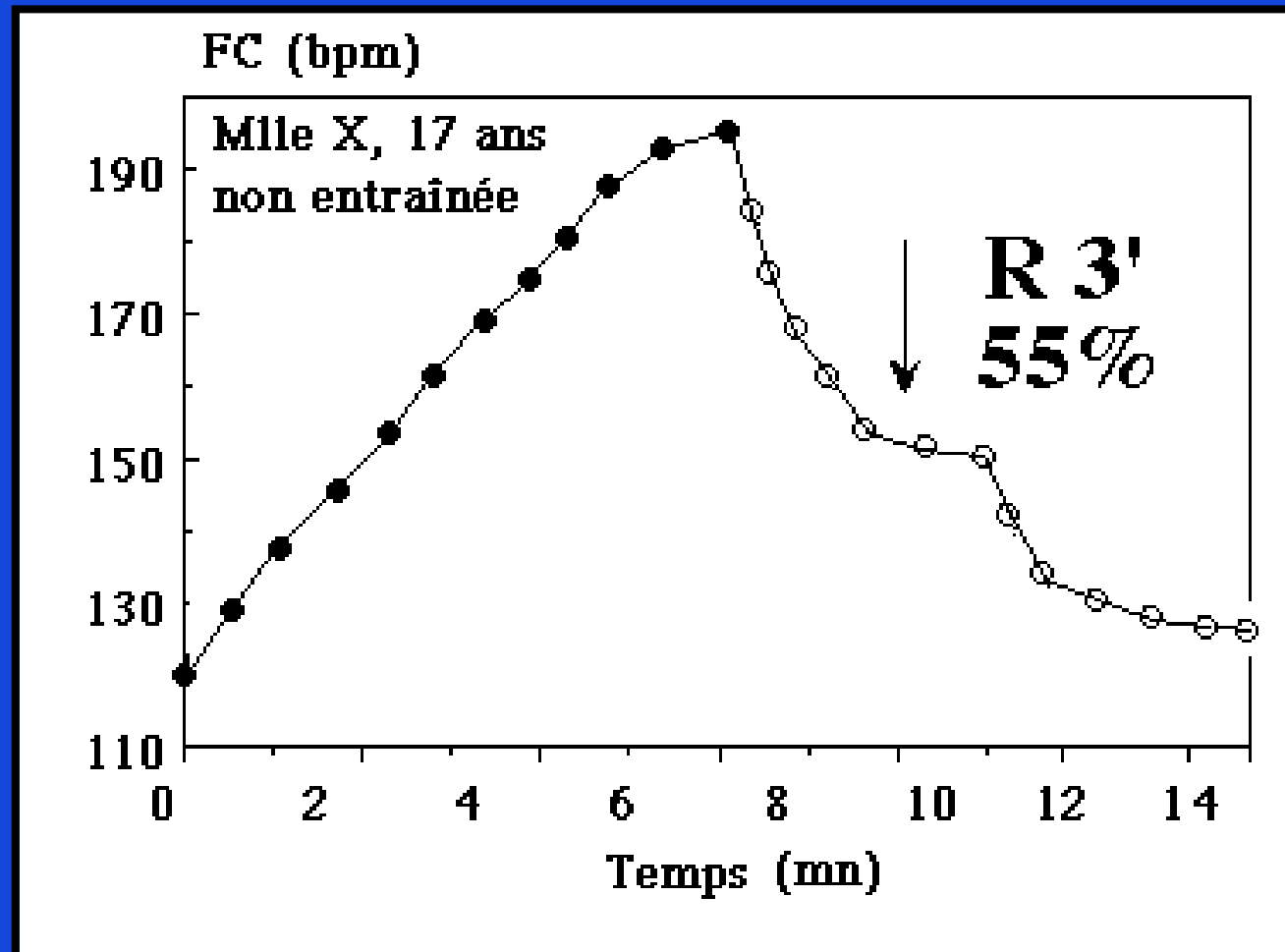
Il recupero dopo l'esercizio ?



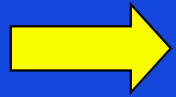
Campione di mountain bike



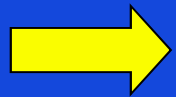
Sedentario



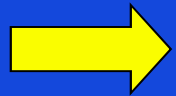
Comparare la FC della stessa persona ?



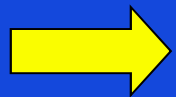
Lo stesso esercizio



La stessa intensità



Le stesse condizioni : T°, ora

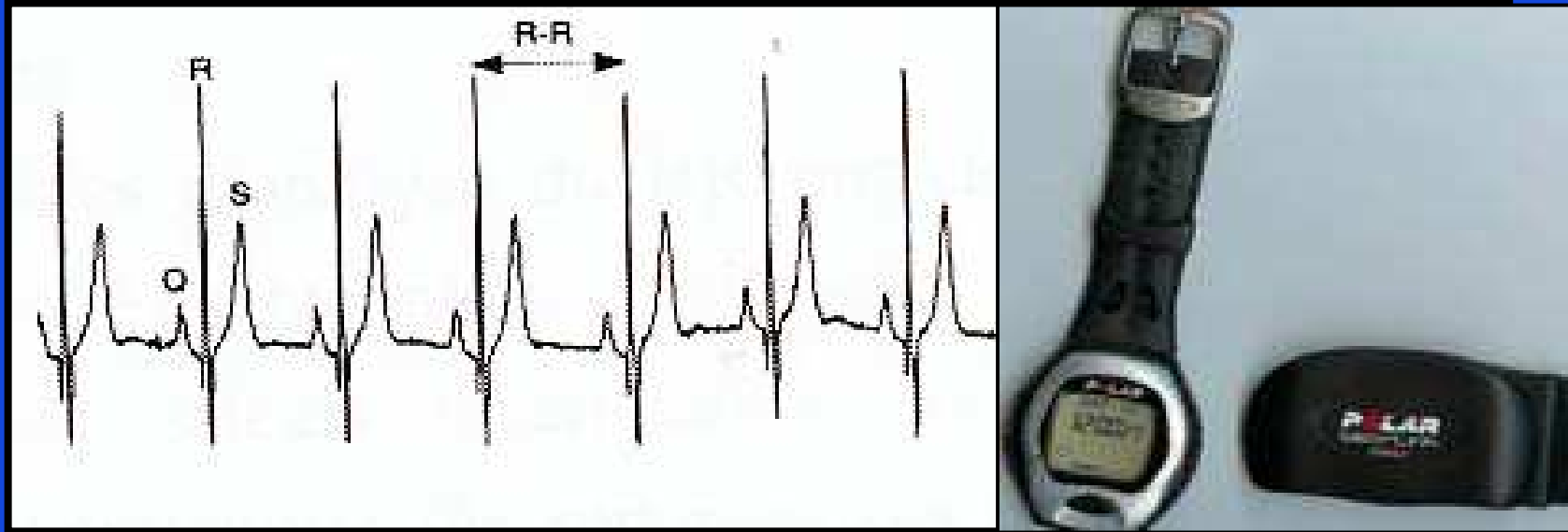


Verificare le performance

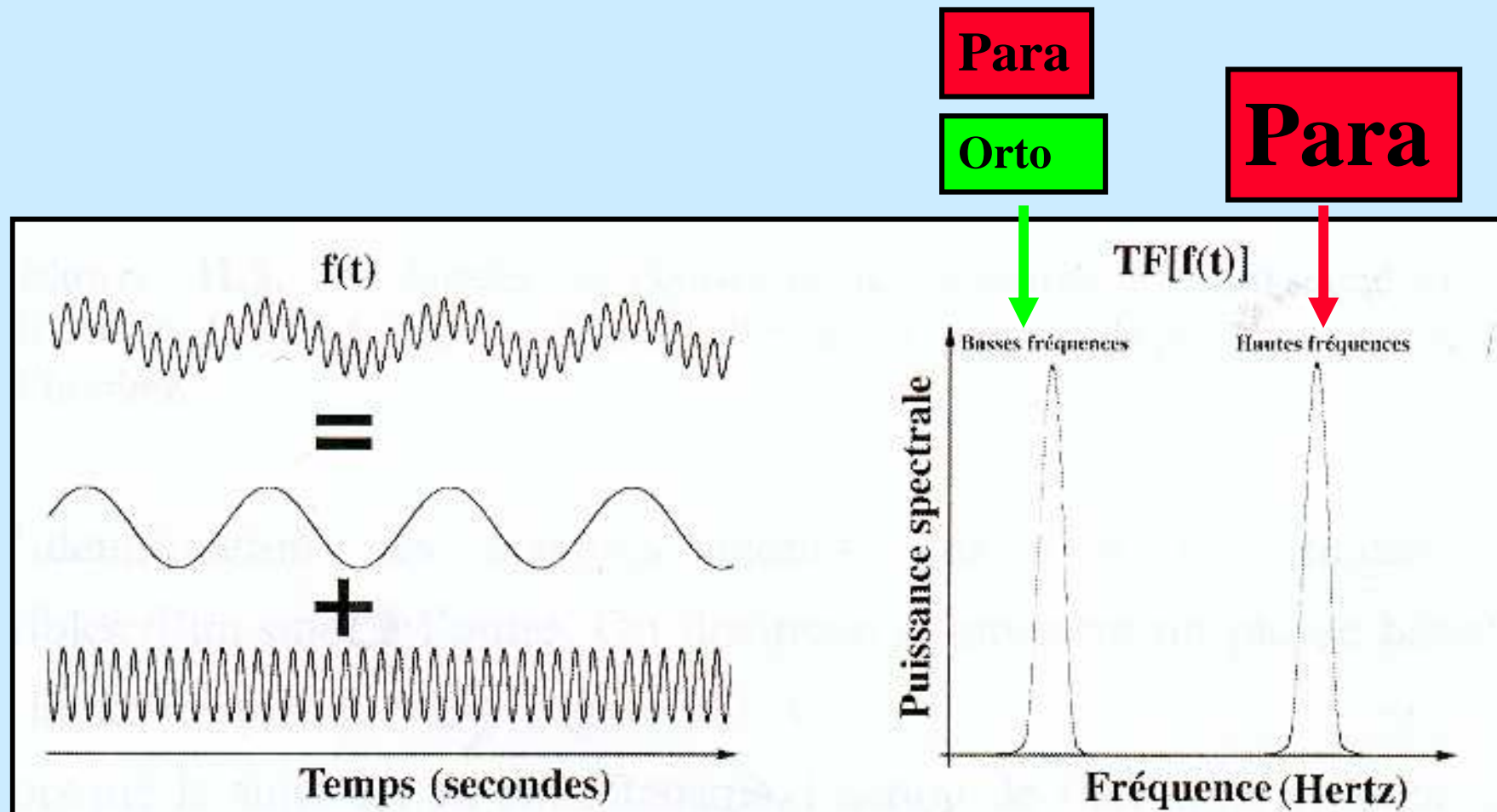
Dopo il recupero ...

Quasi mai fatto ...

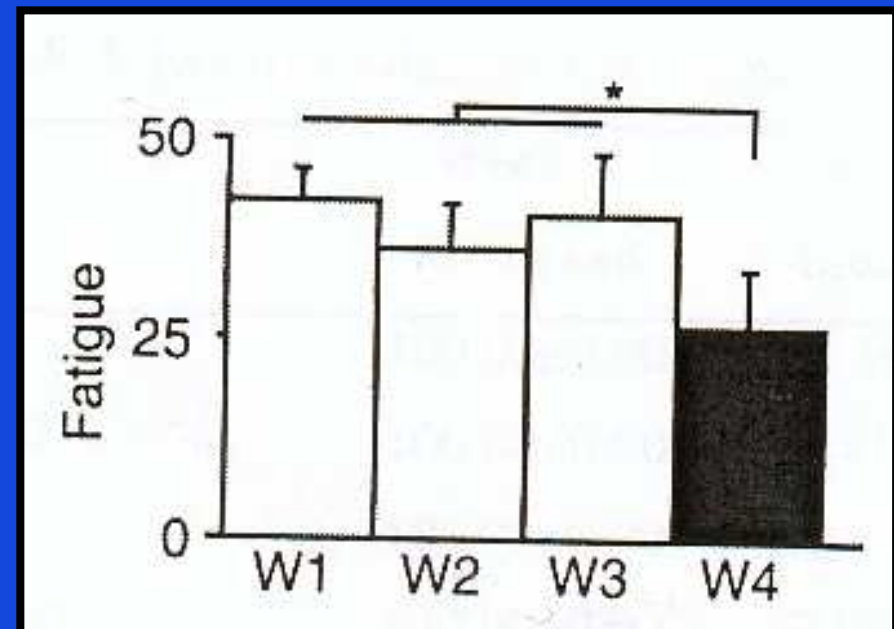
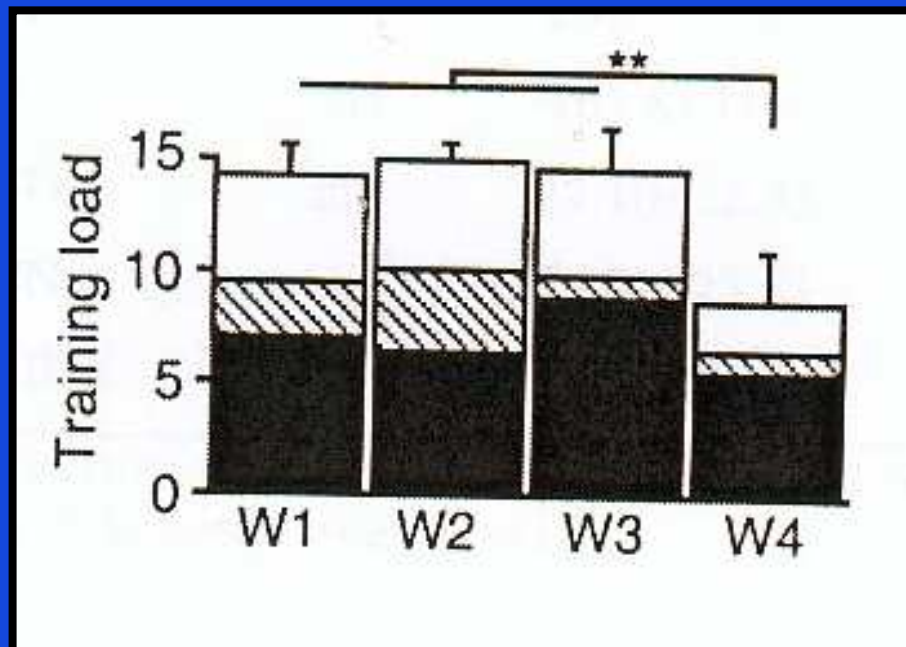
Variabilità della FC



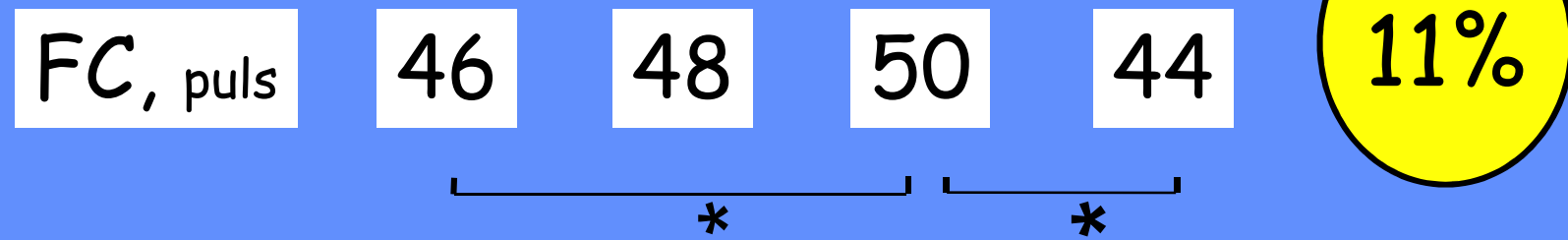
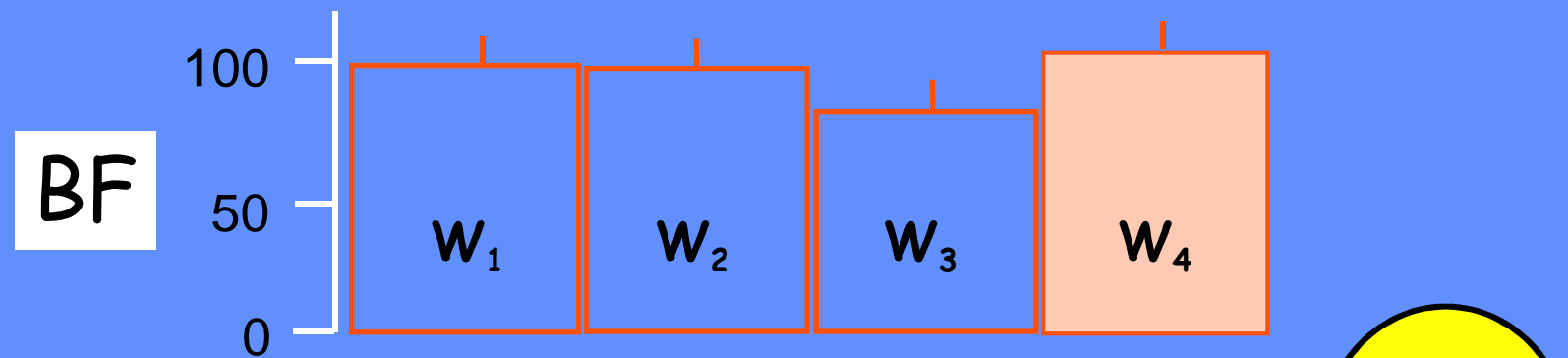
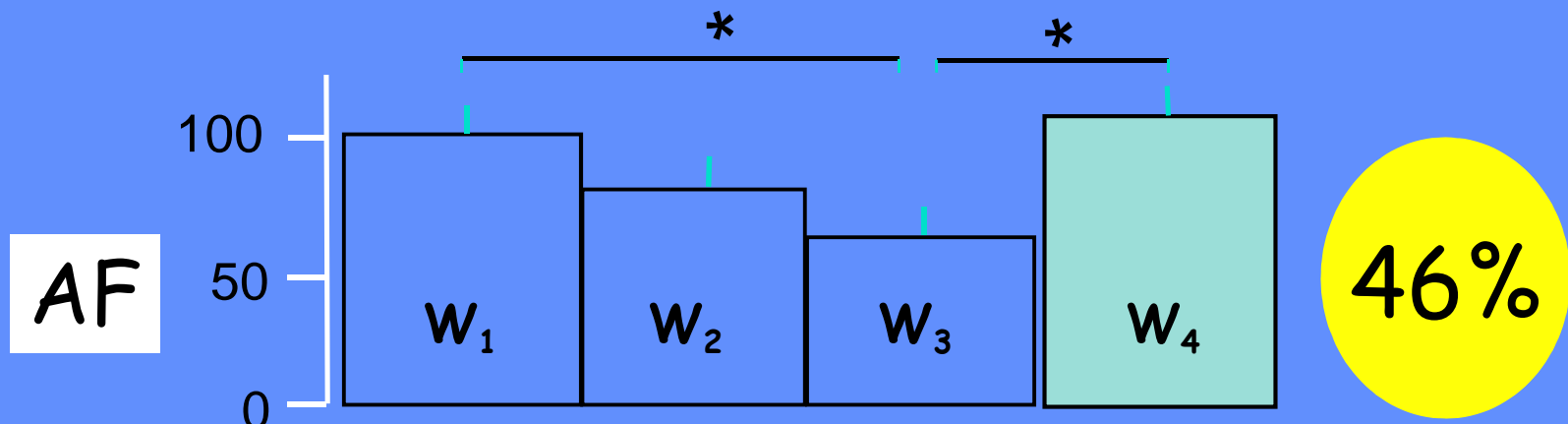
Equilibrio orto - parasimpatico



FC e allenamento

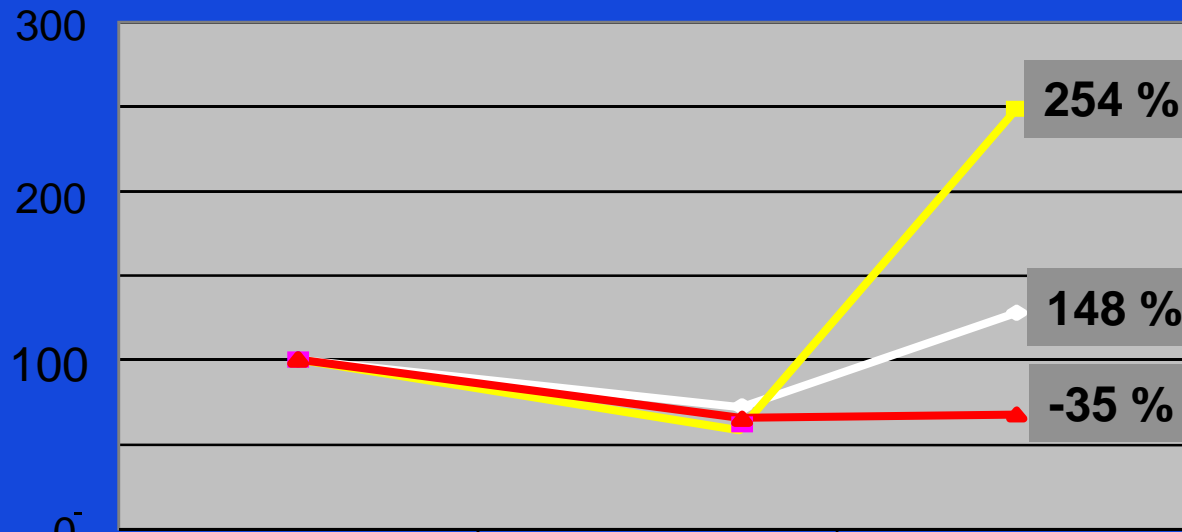


Pichot et al. MSSE 2000



Pichot et al. MSSE 2000

AF %



$$5'03 : 4'54 = - 9 s$$

$$5'10 : 5'04 = - 6 s$$

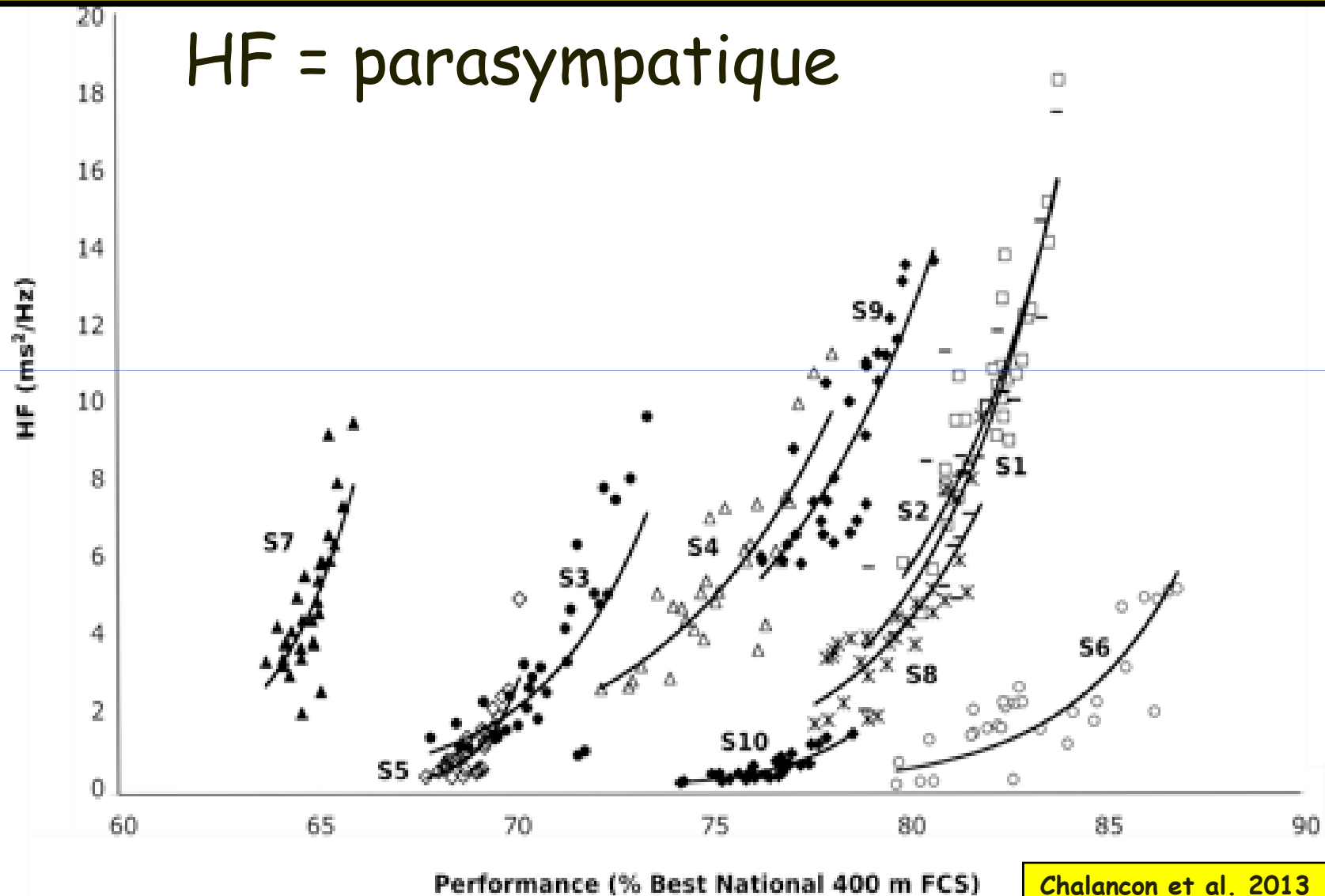
$$5'10 : 5'16 = + 6 s$$



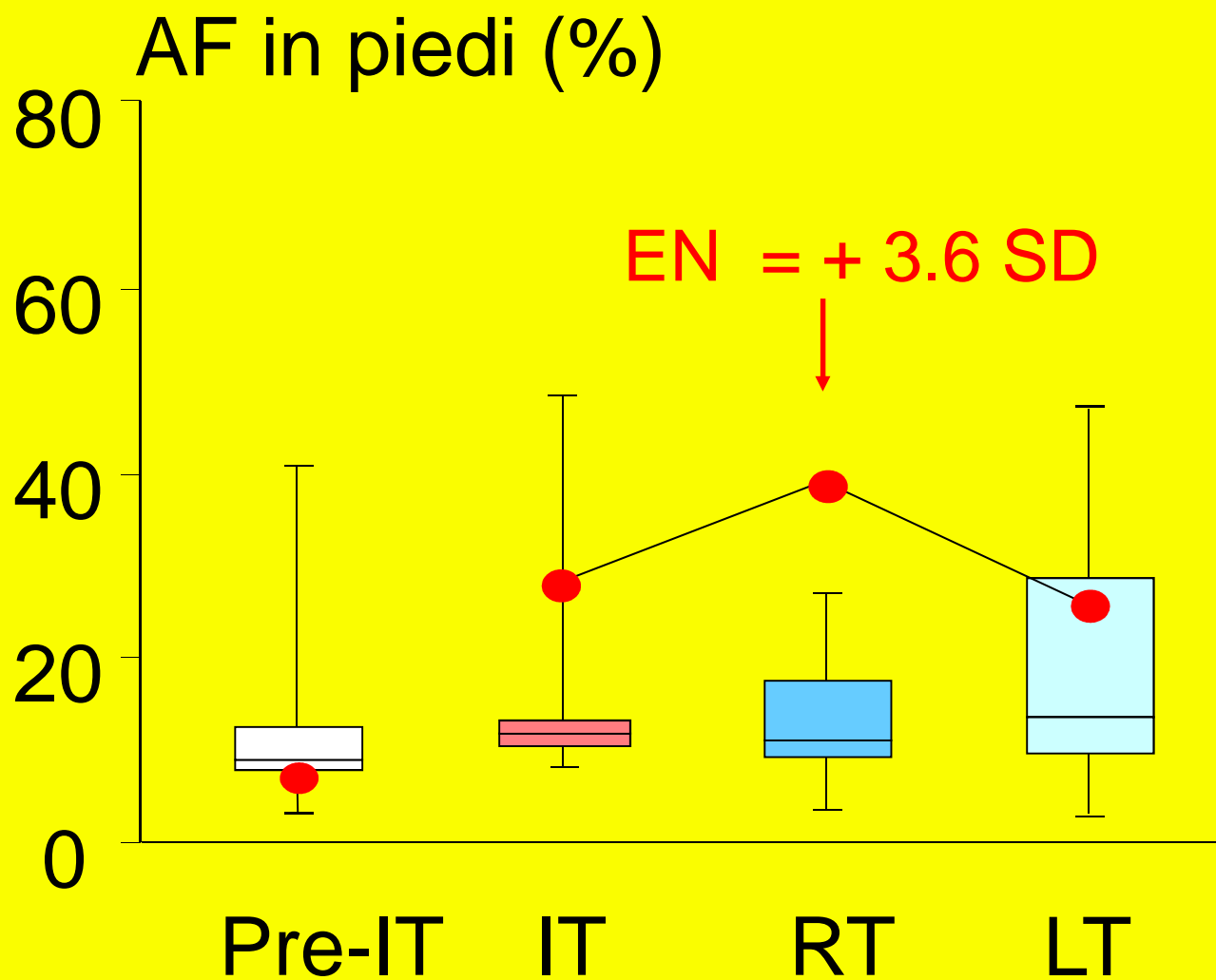
Prévention de la fatigue

- 10 nageurs: 14 - 22 ans
- 20 - 30 km/semaine
- 30 semaines
- Compétitions 400 m les vendredi
- FC enregistrée la nuit : holter

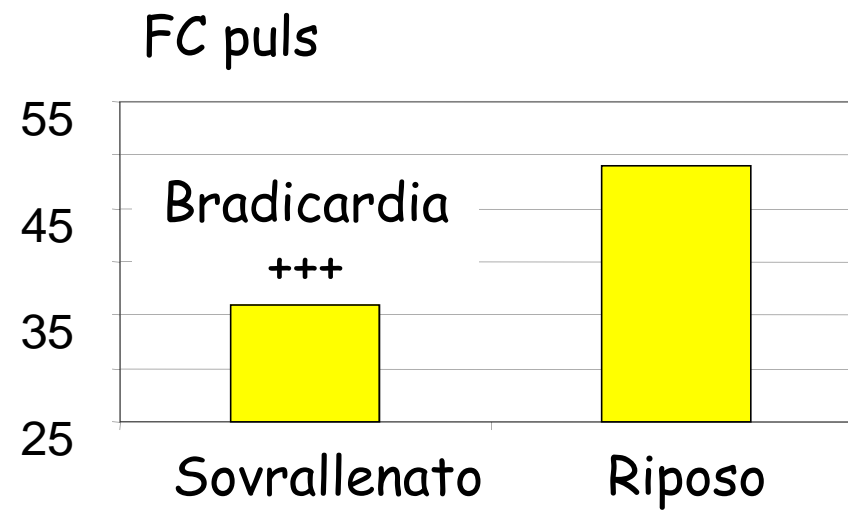
Prévention de la fatigue



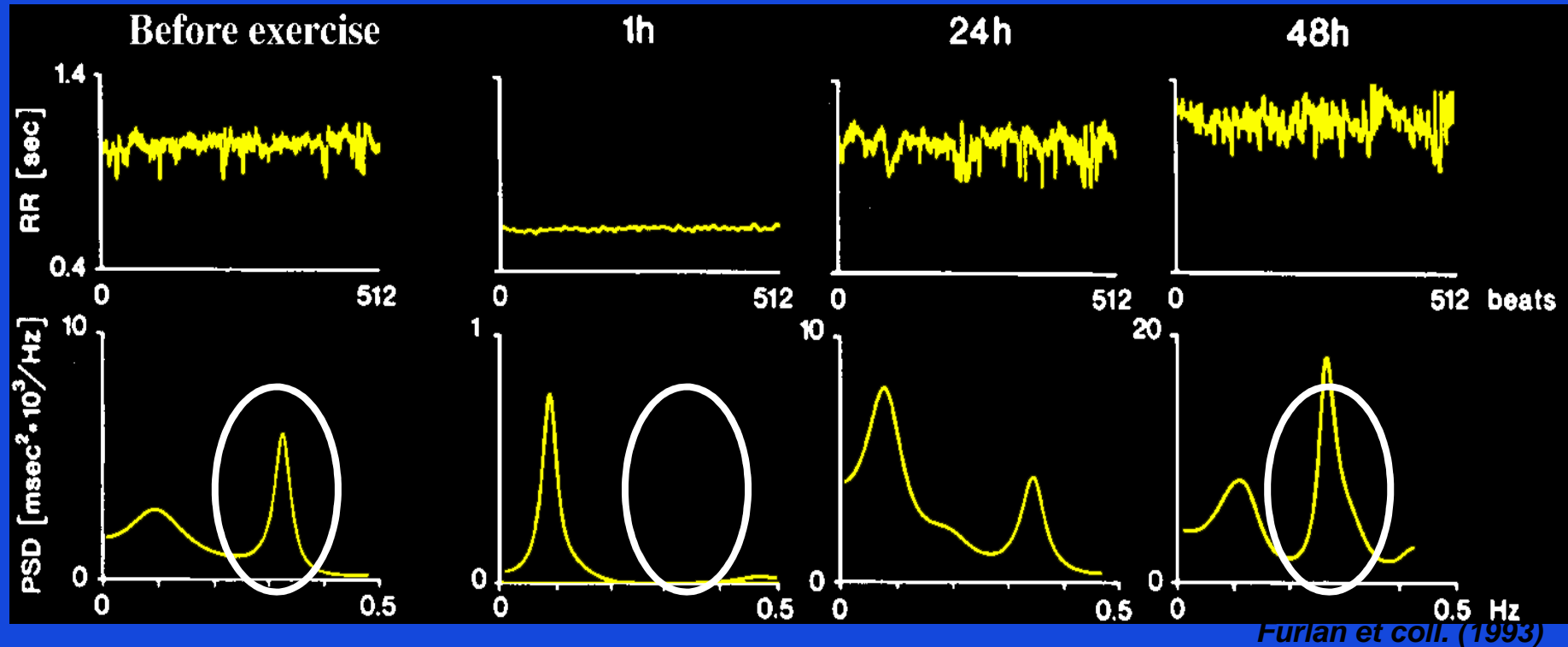
Nuotatore sovralLENato



Nuotatore sovralLENato

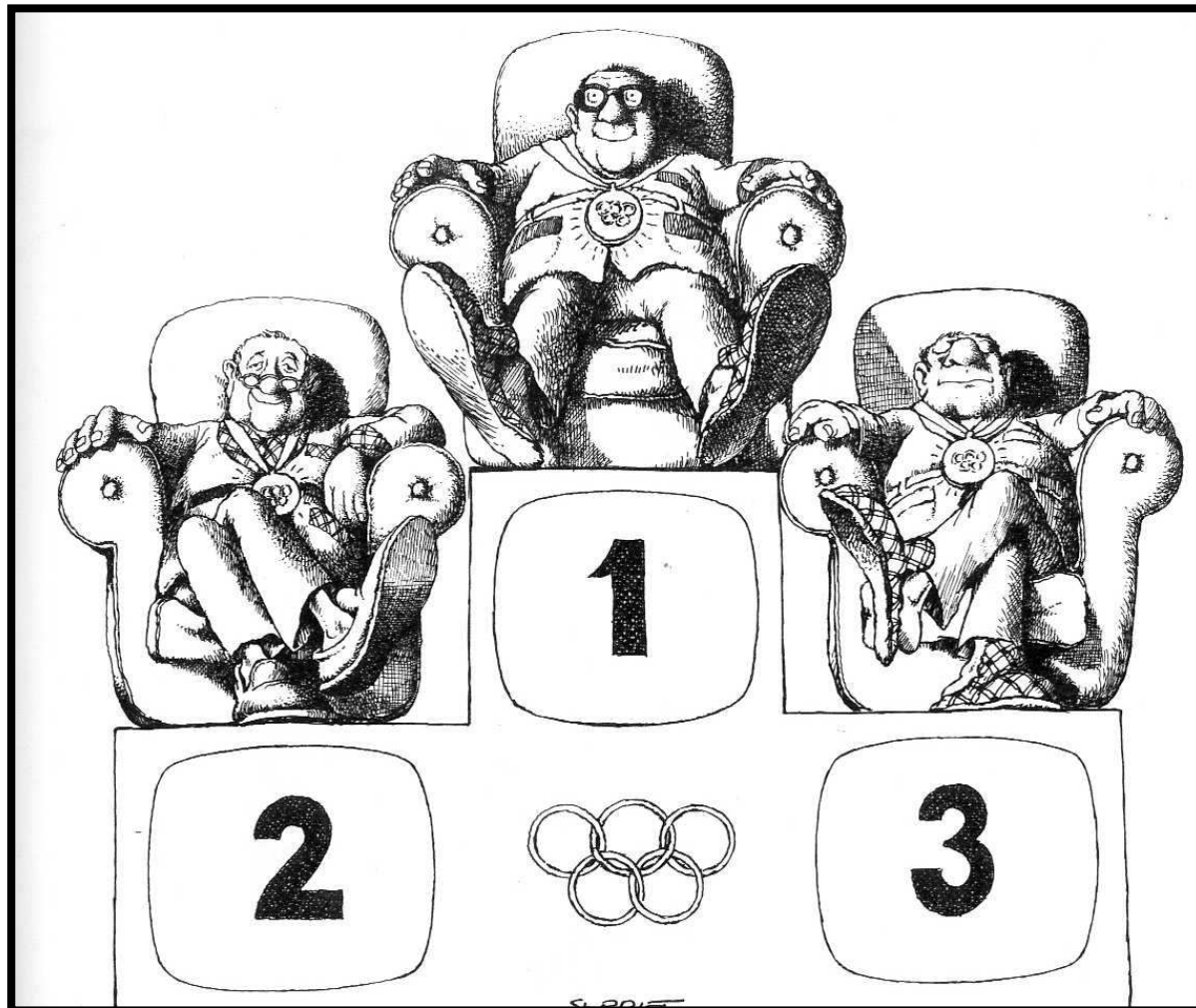


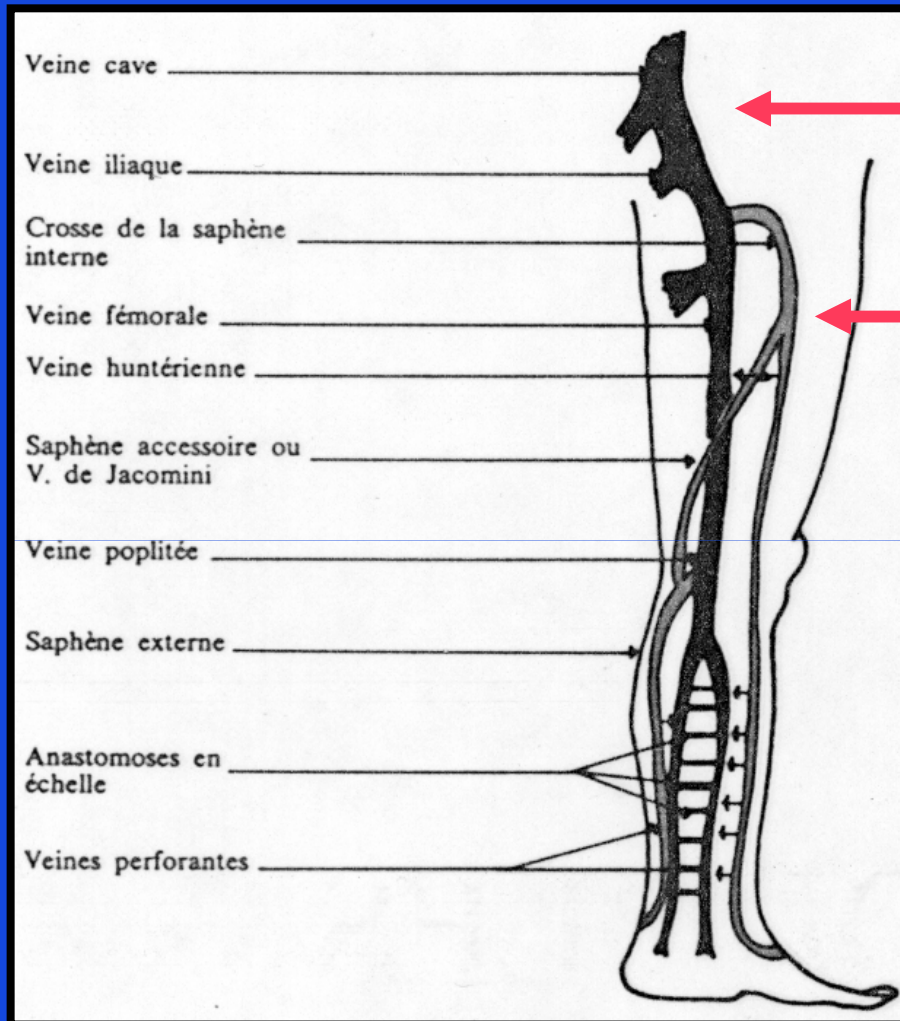
Effetto di un esercizio nelle 48 ore



Le alte frequenze cadono
= caduta del para simpatico

Recupero e calze elastiche ?

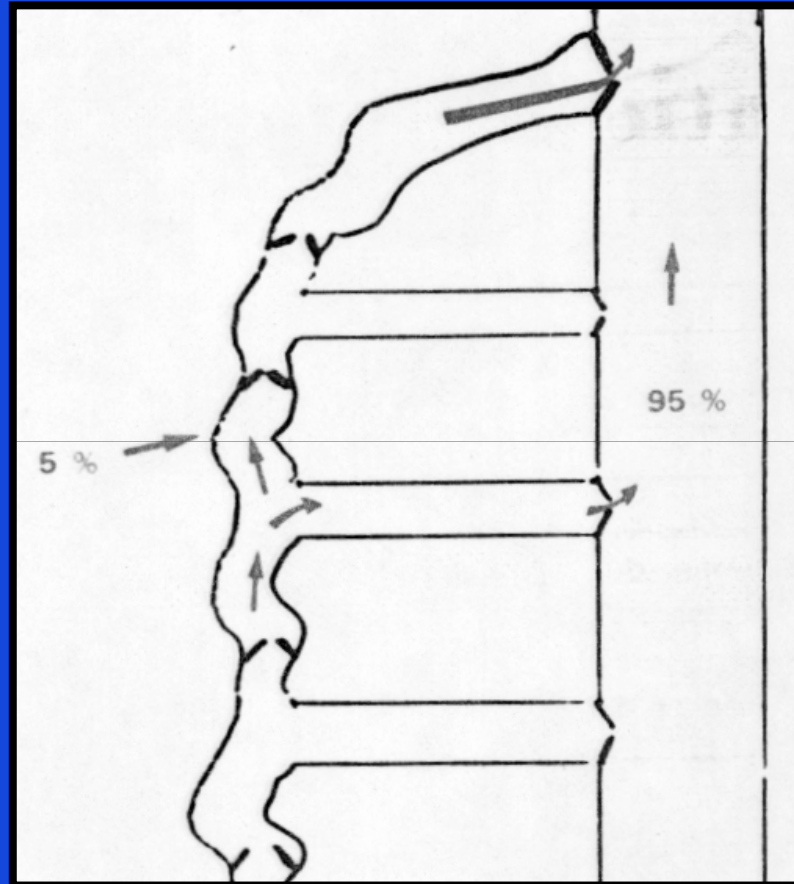




Vene profonda

Vene superficiali

Dilatazione dopo l'esercizio



Stagnazione venosa del sangue

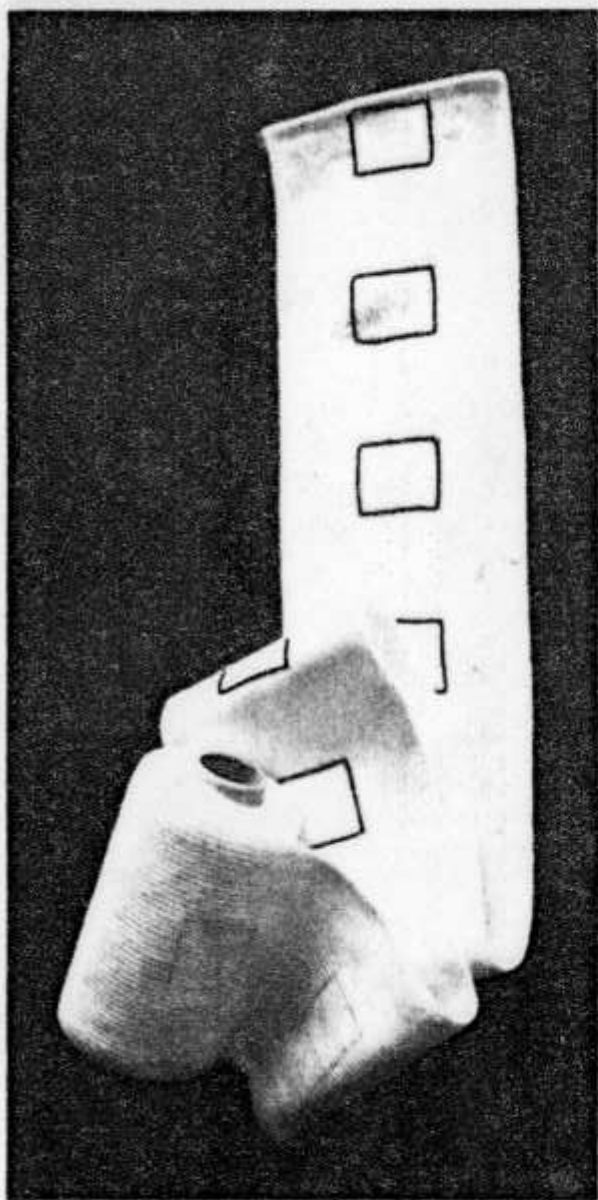


FIG. 7. - Bande étalonnée détendue.

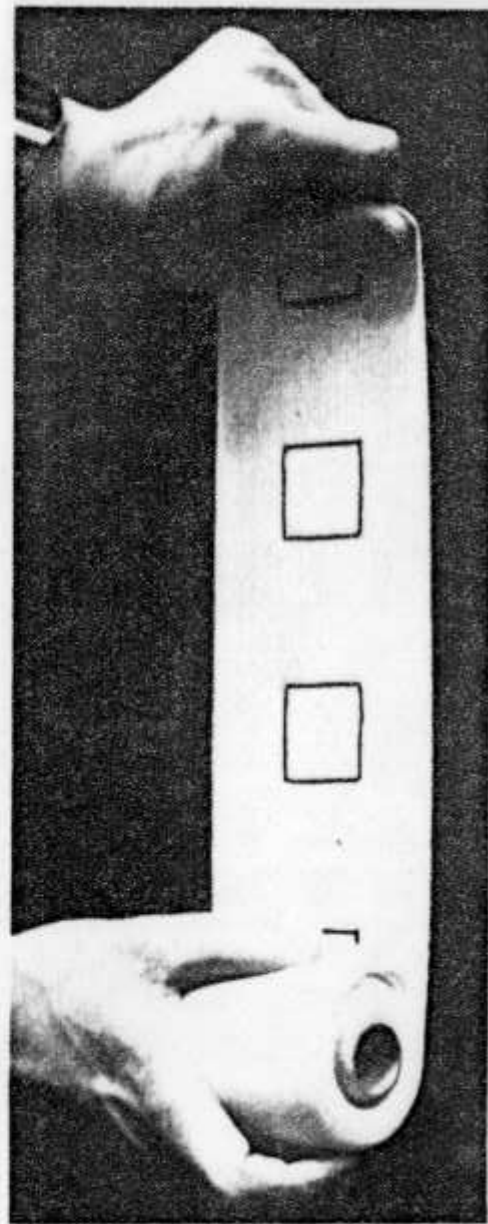


FIG. 8. - Bande étalonnée étirée à 30 %.

5 min performance

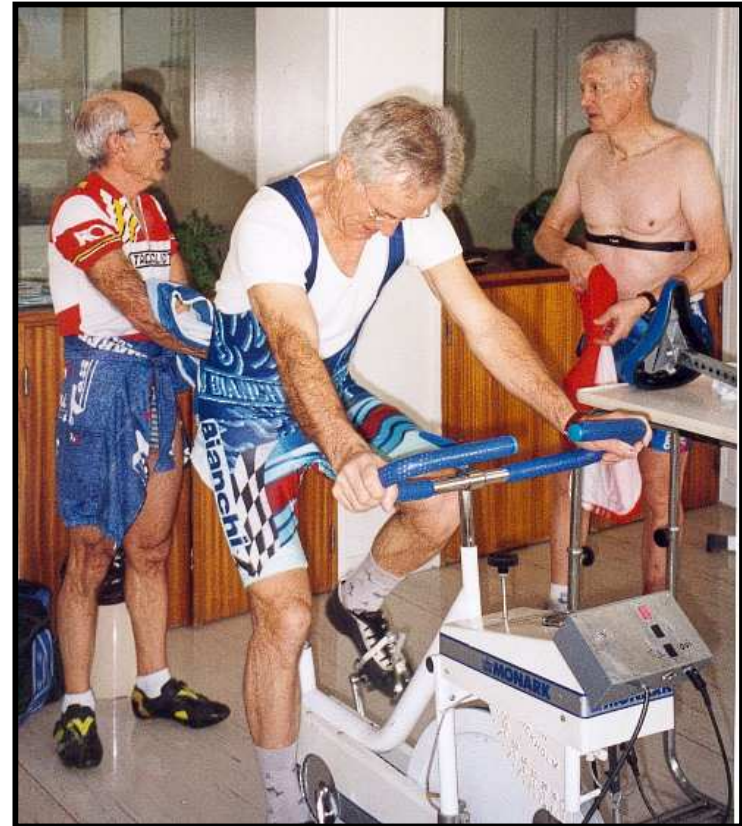
12 sportivi 63 ± 3 anni

Allenamento

$15\ 000 \pm 5\ 100$ km/anno

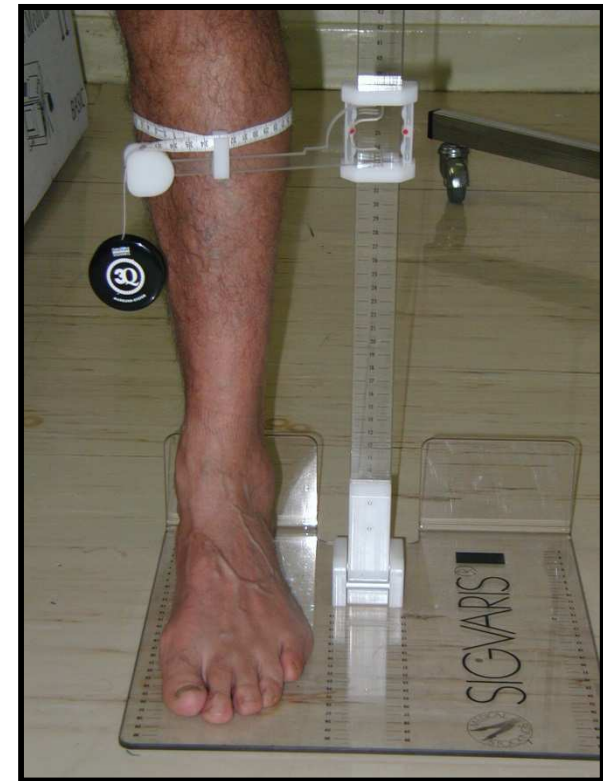
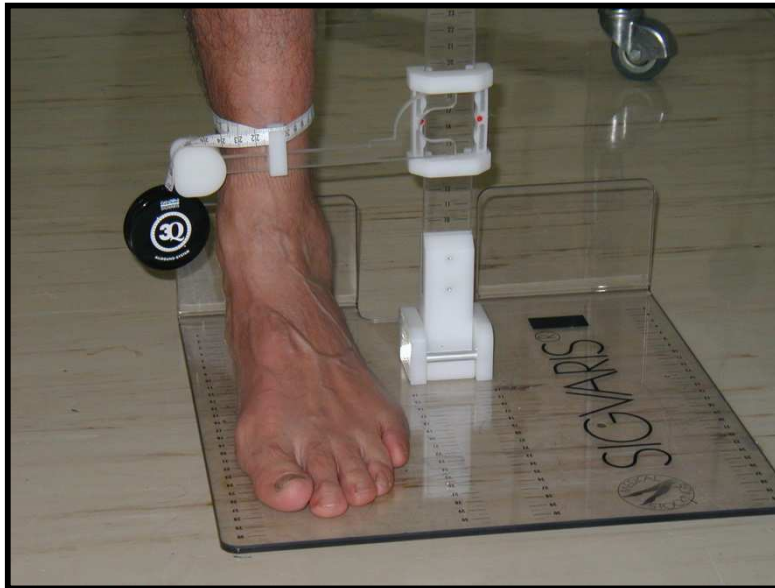
4 volte :

2 con/2 senza calze

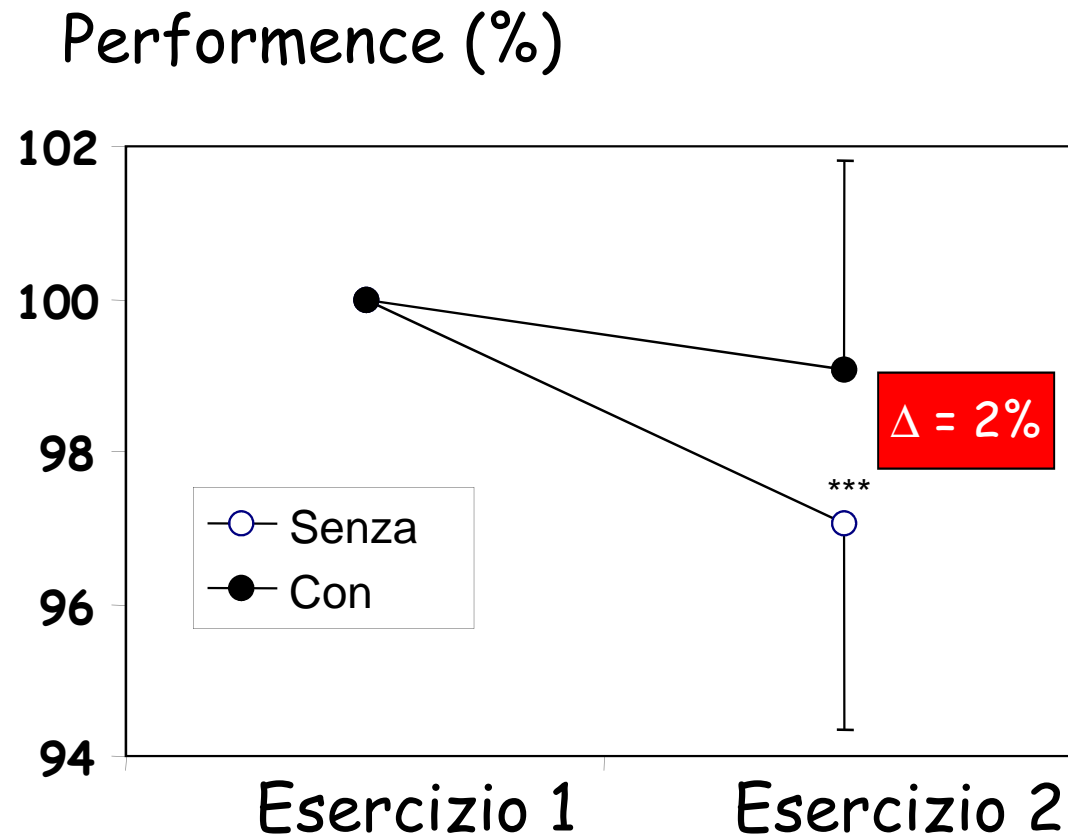


Recupero 80 min

Pressione
20 - 35 mm Hg

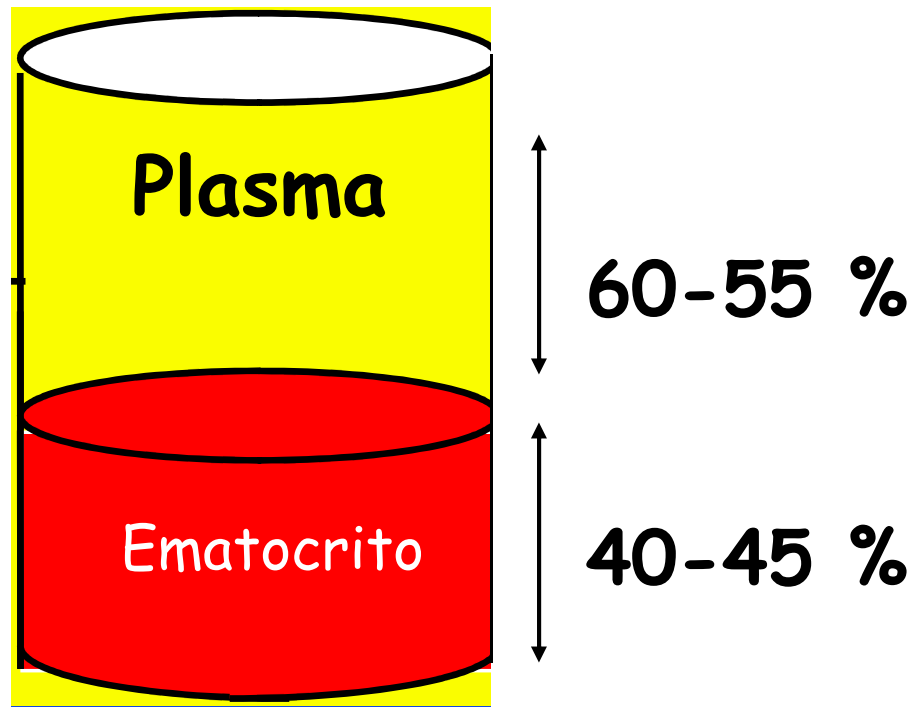


Performance

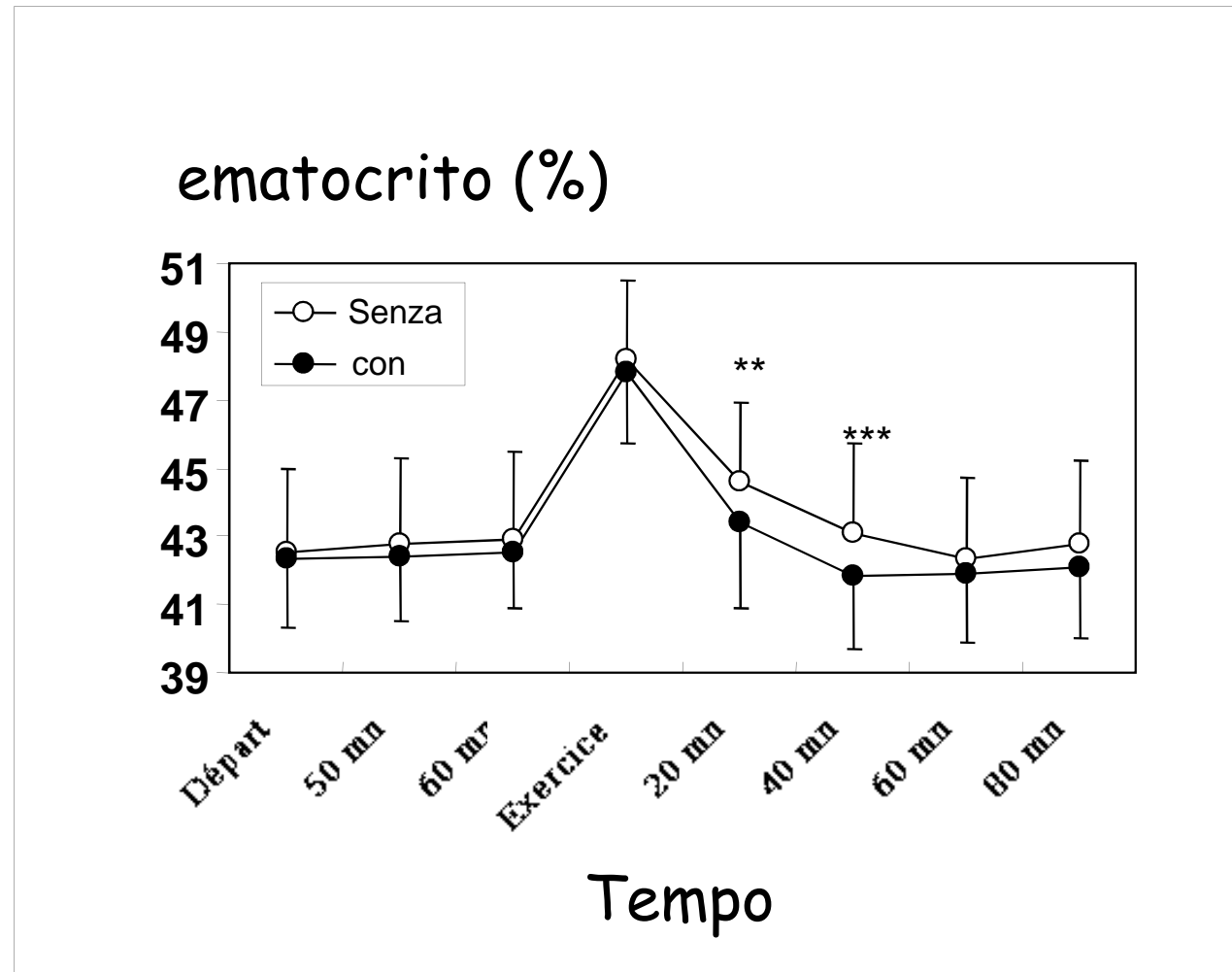


Beneficio 6 s

Ematocrito

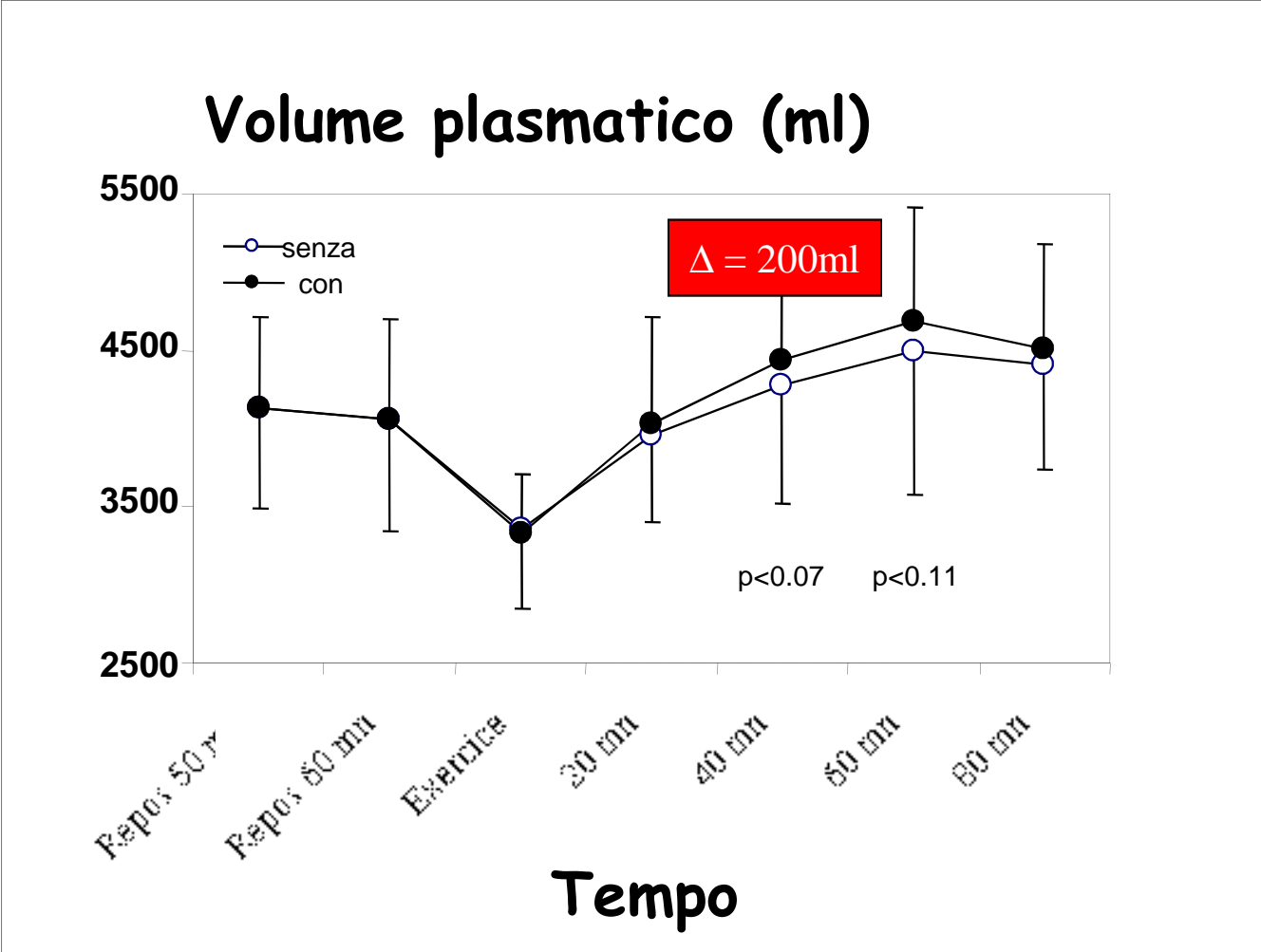


Nel sangue ... globuli rossi



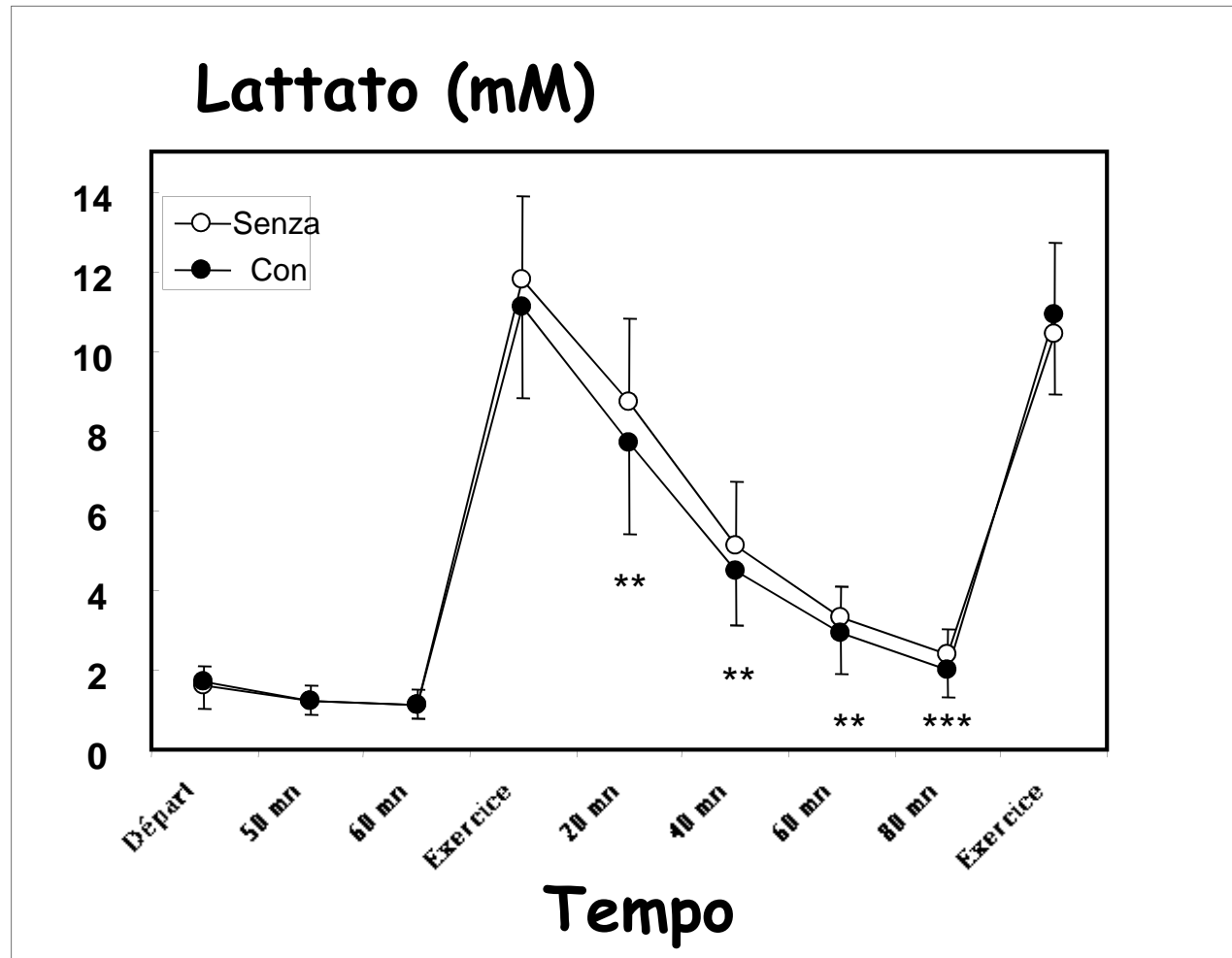
Molto diluiti con le calze

Nel sangue ... volume plasmatico



Più grande volume plasmatico

Diminuzione del lattato



Grande diminuzione di lattato

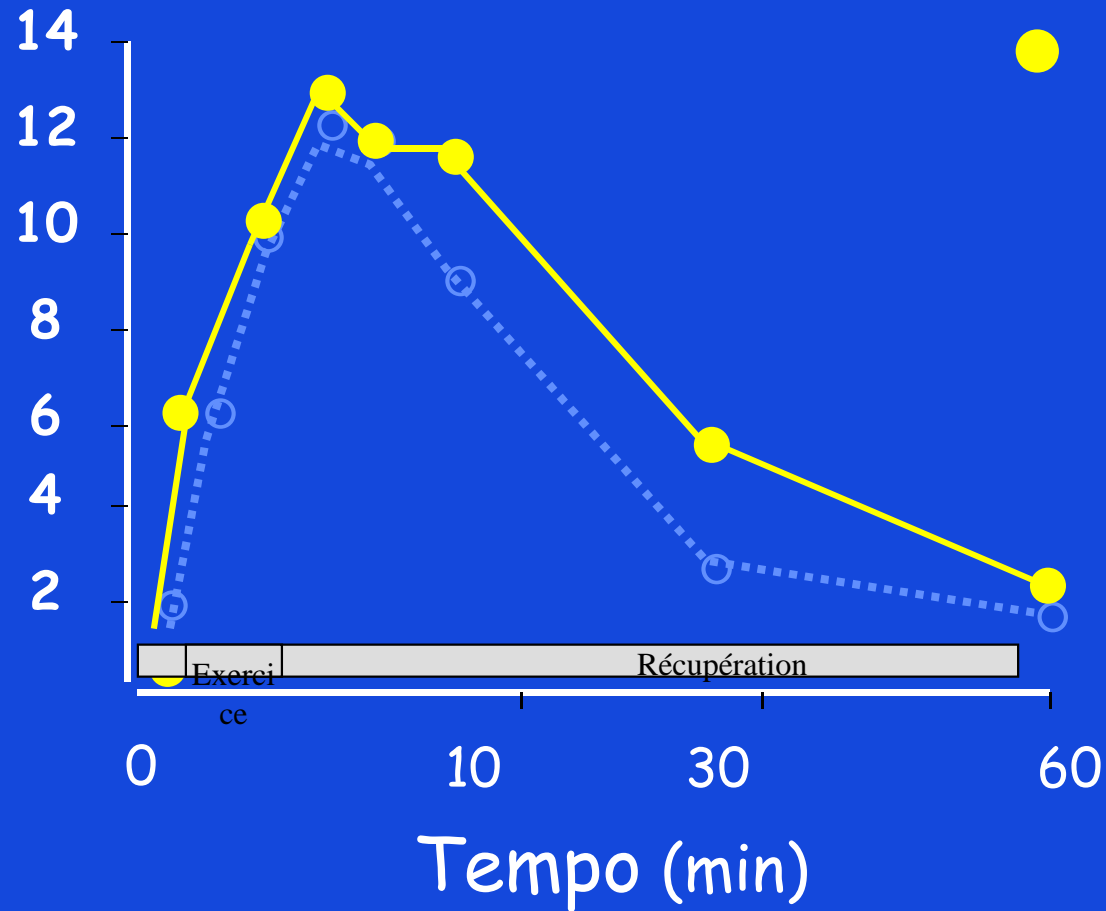
Il recupero ed il lattato ?



Lattato (mM)

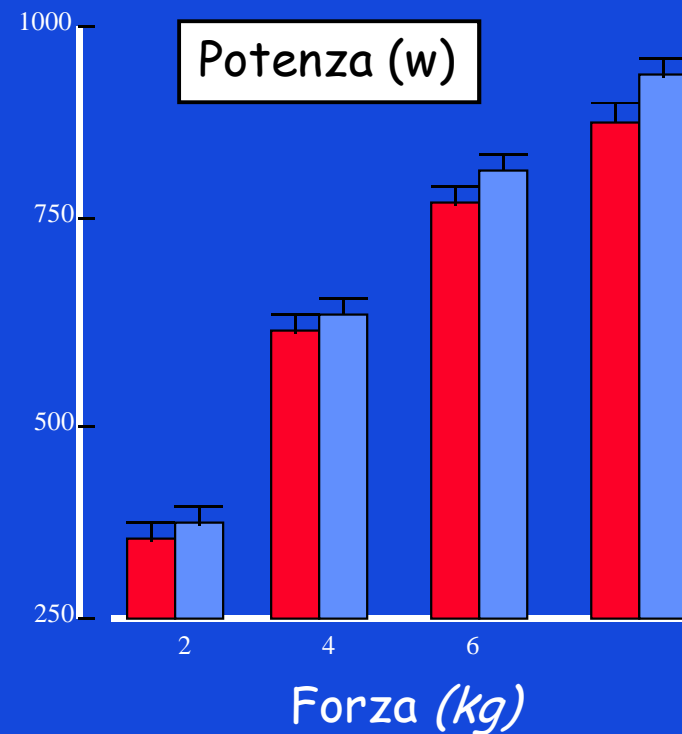
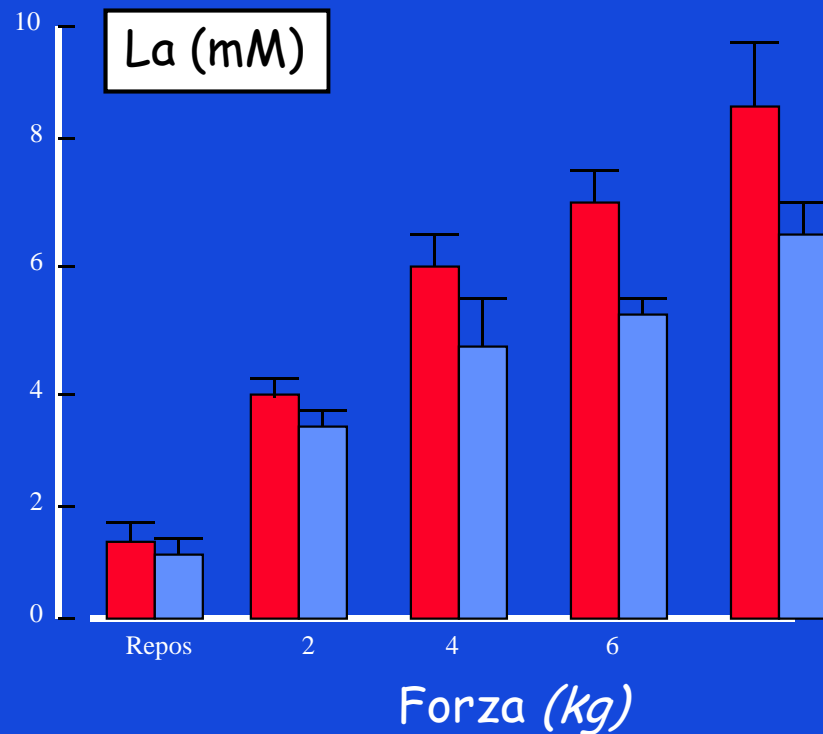
○ Attivo

● Passivo



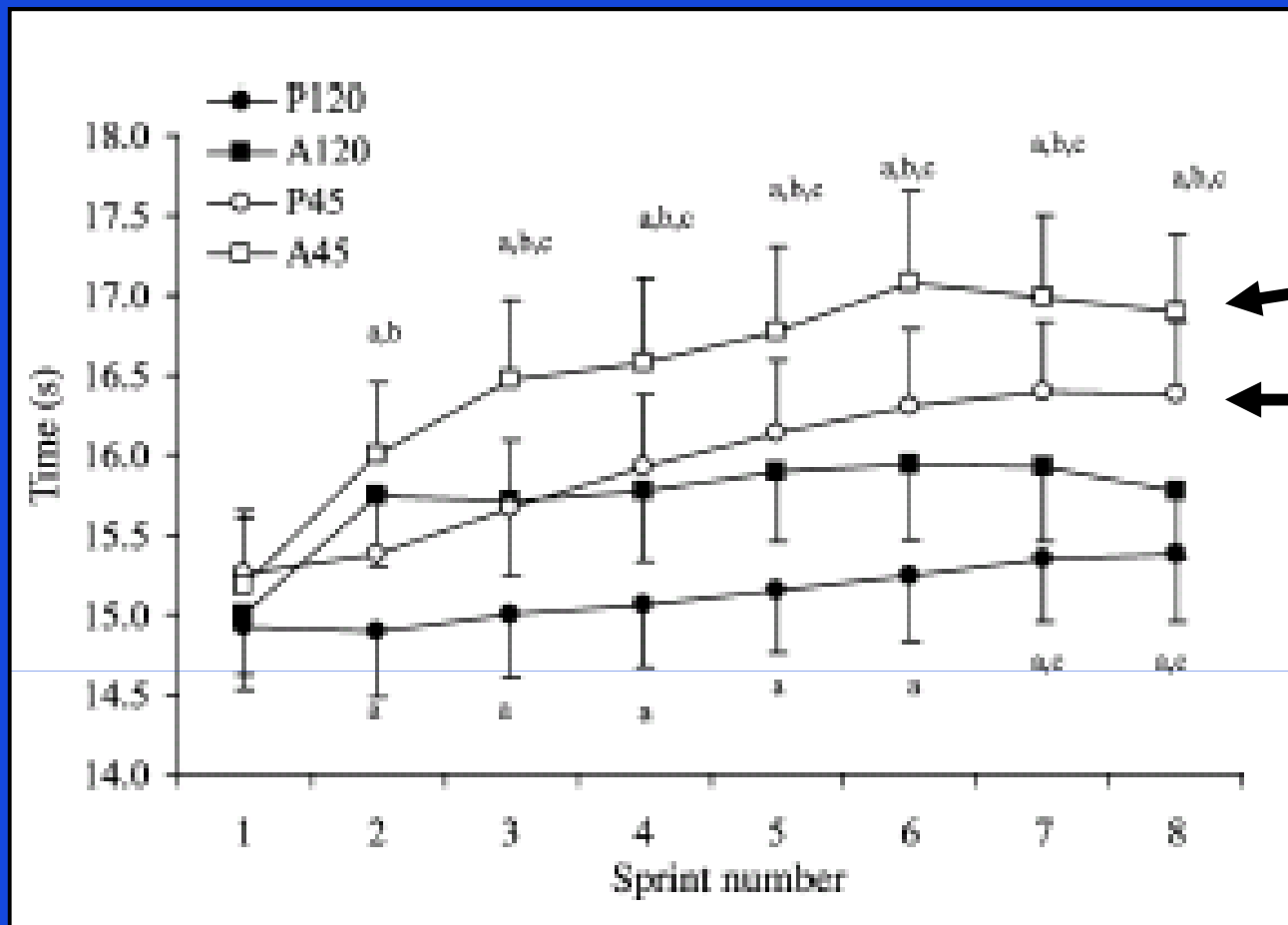
Choi et al. EJOAP 1994

Passivo
Attivo



Recupero attivo (32% VO_2 max)

Ahmaïdi et al. 1996



attivo

Passivo

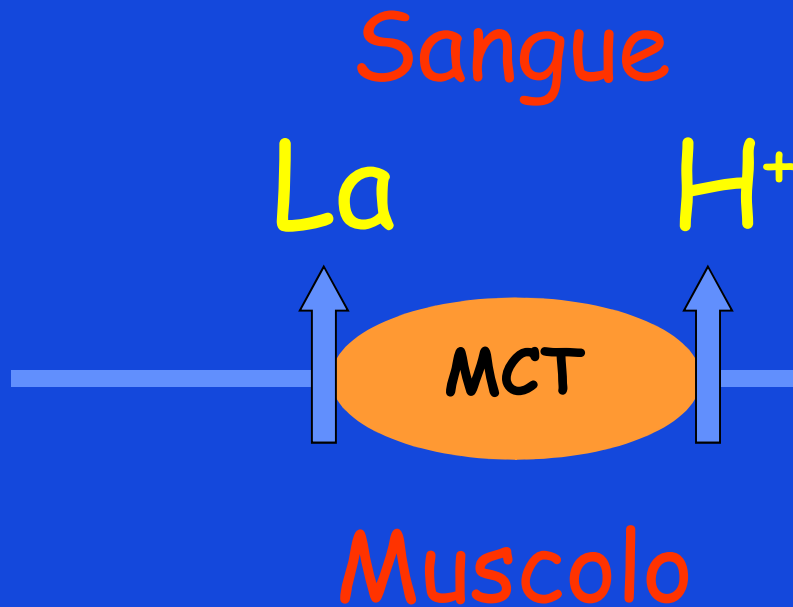
Nuoto : 8 x 25m riposo 45 o 120 s

Toubekis et al. EJOAP 2005

Beneficio del recupero attivo

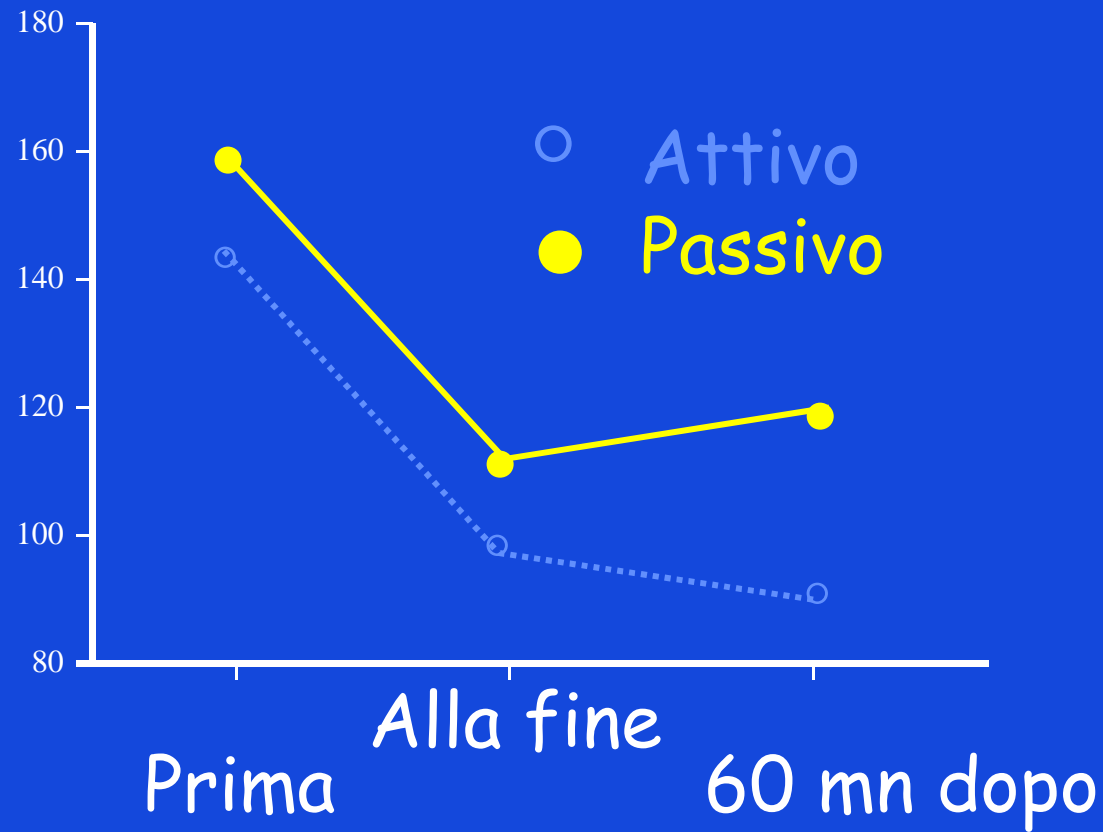


diminuzione dell'acido muscolare



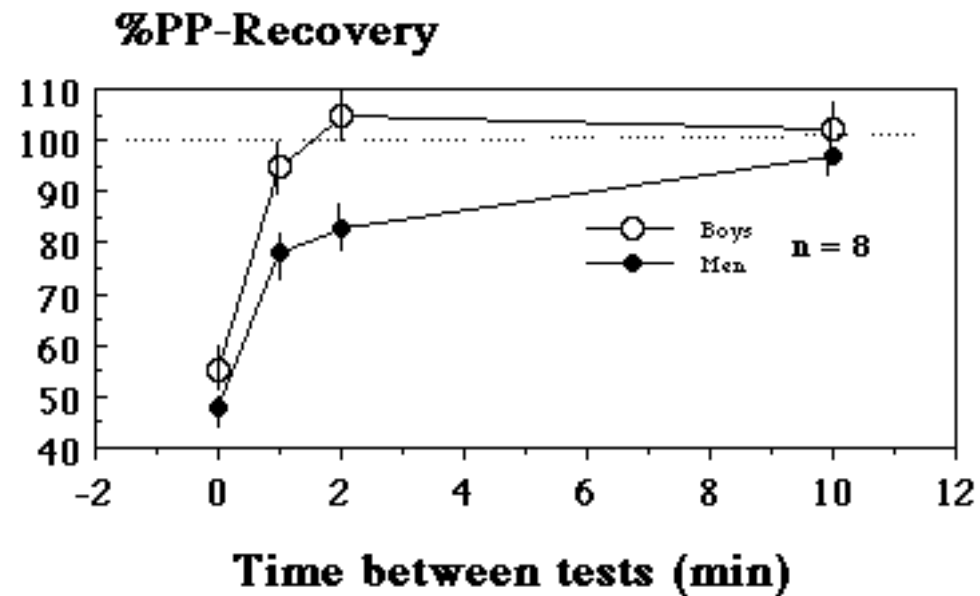
Ma questo non è tutto ...

Glicogeno muscolare



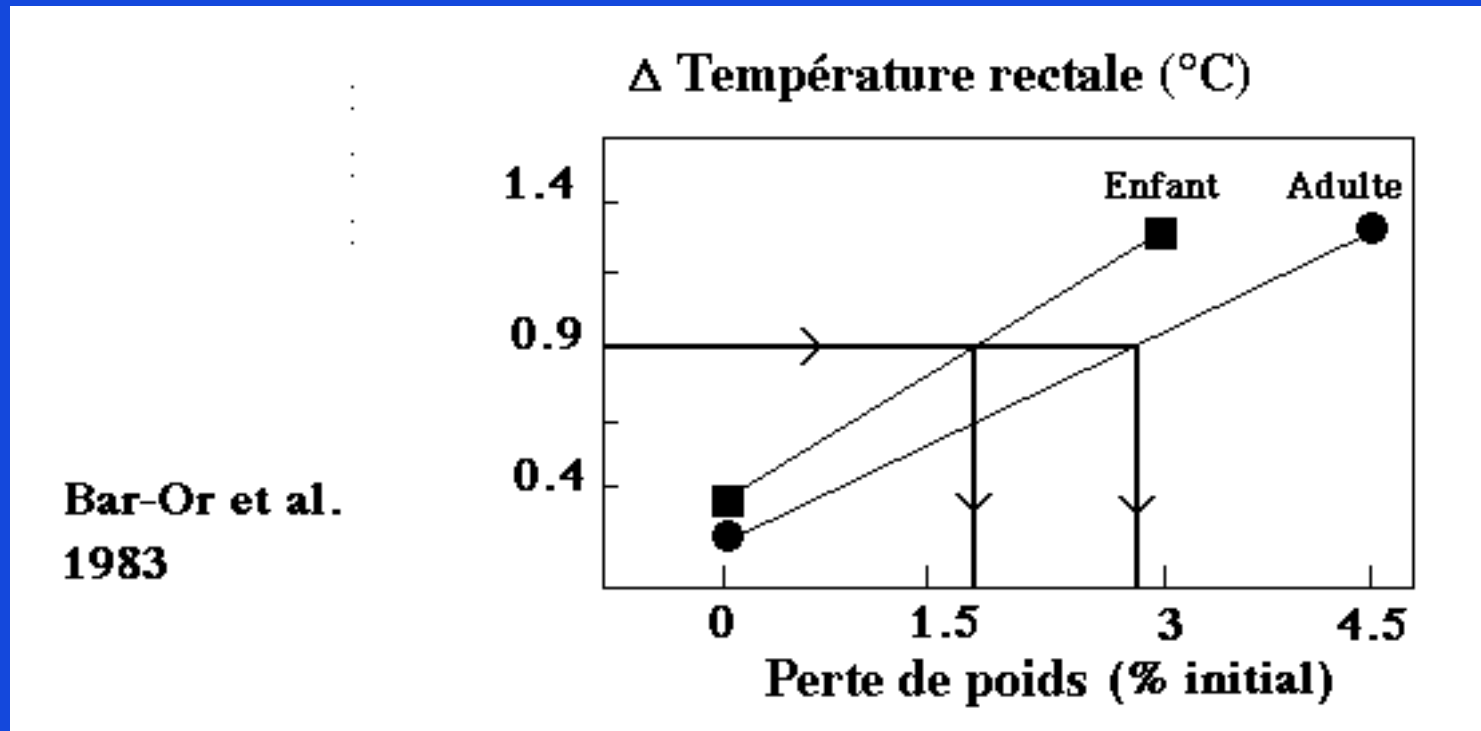
Choi et al. (1994)

Il ragazzo recupera più rapidamente che l'adulto



Heberstreit et al.
1993 JAP

Il ragazzo si raffredda più rapidamente ...



Dunque non a bisogno di bere molto ...

$<2\%$ = 1.5 per 72kg no effetto

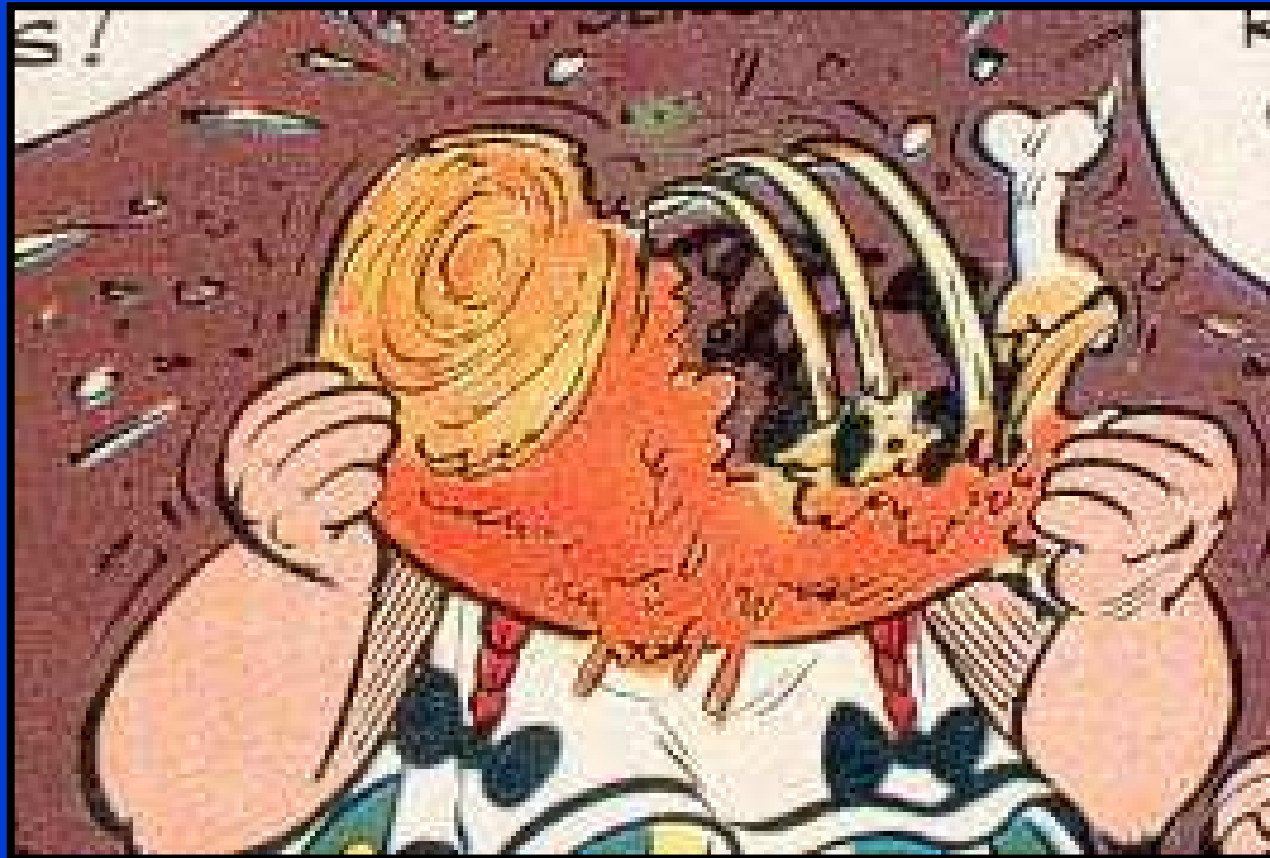
Basket max 2 à 2.5 L = 1% peso

Football max 1 à 2 L = 1 à 2%

Rugby 1.5 à 3 L = 1 à 2%

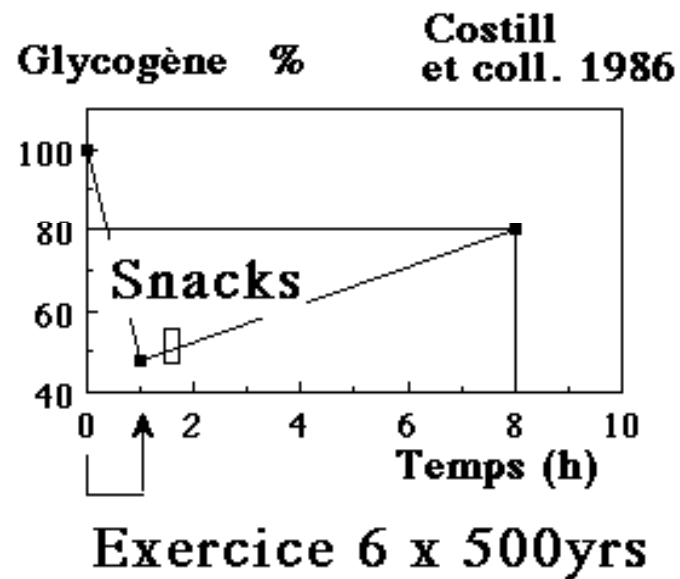
Nuoto = 0.3 - 0.6 L/h = 0.5 %

Alimentazione



Tempo per il recupero ?

Glycogène ?

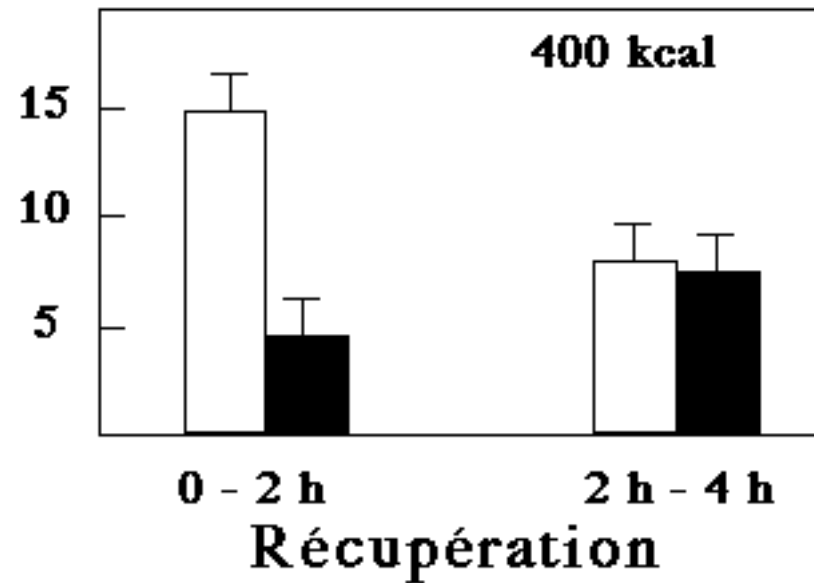


Distanziare le sessioni o diminuirle

Mangiare immediatamente dopo l'esercizio ?

Glycogène ?

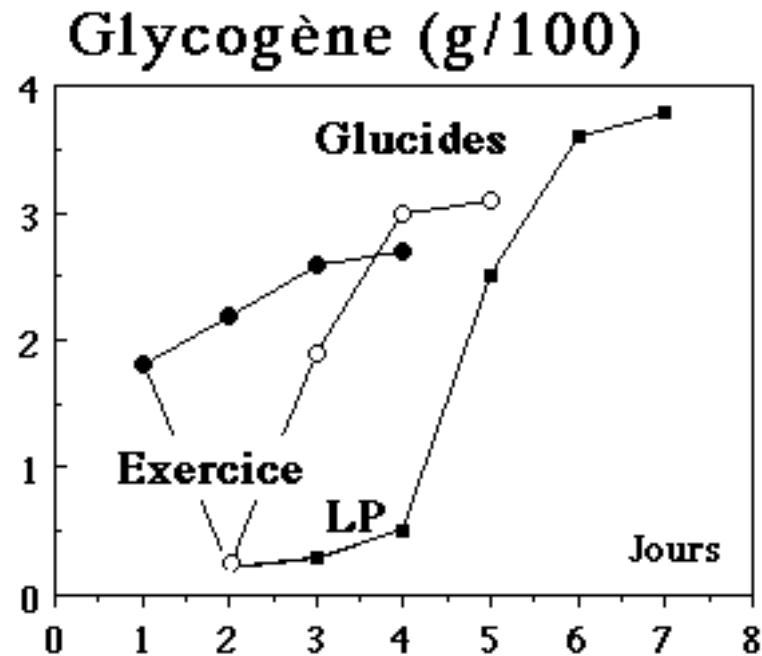
Synthèse en glycogène ($\mu\text{mol/g}$)



Ivy et coll
1991

Da 2 a 3 giorni per il recupero

Glycogène ?



I mezzi ergogenici

Bicarbonato : 0.3 g/kg

Creatina : 20g/giorno

Caffeina

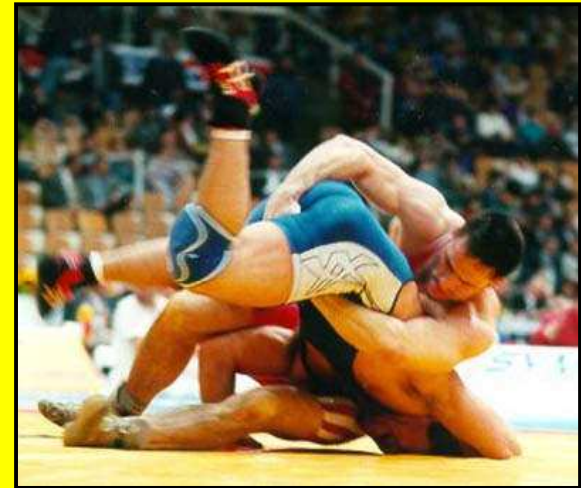
Acidi ramificati

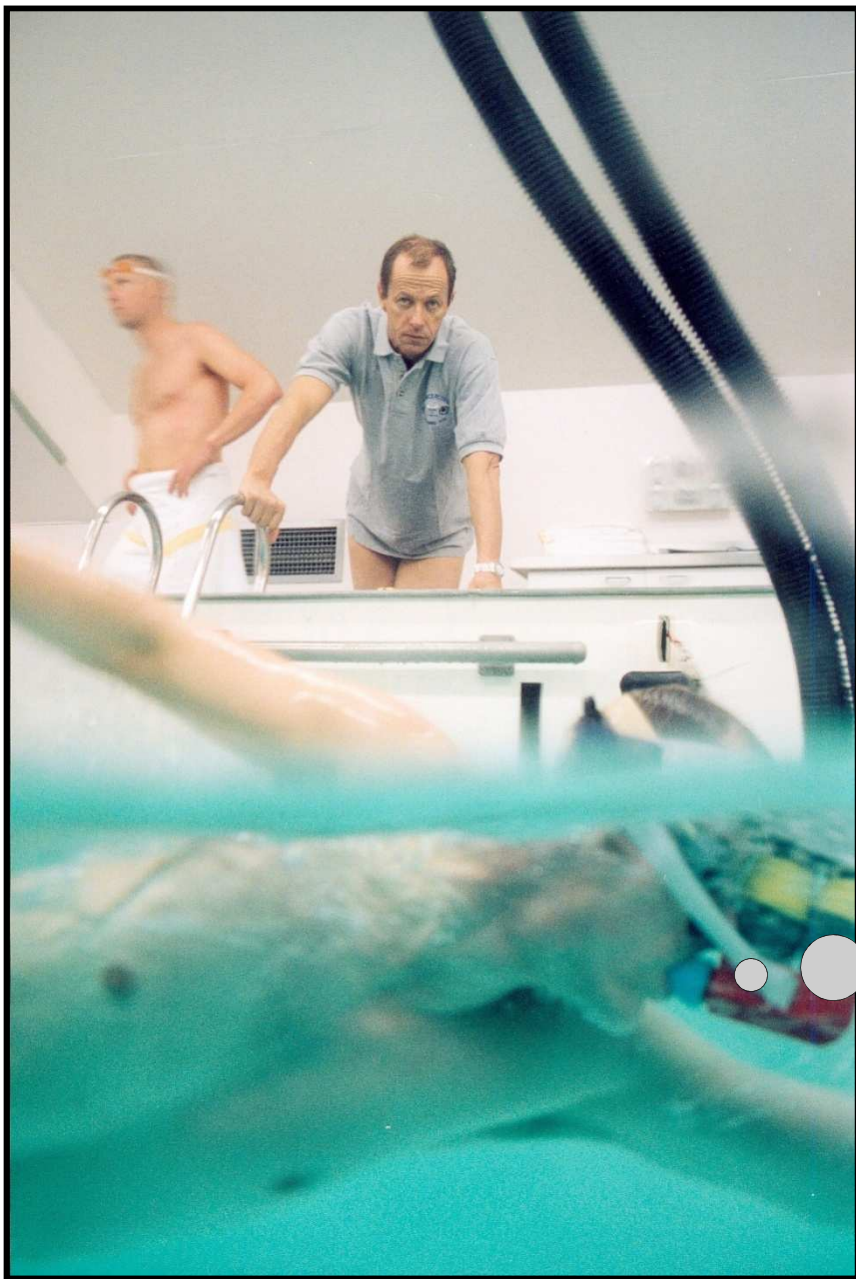
Cioccolata bianca

Anti-ossidanti

Multi supplementi...

Etc...





**Grazie mille
per la
vostra
attenzione**

**Zitto non
ti ascoltano
più**