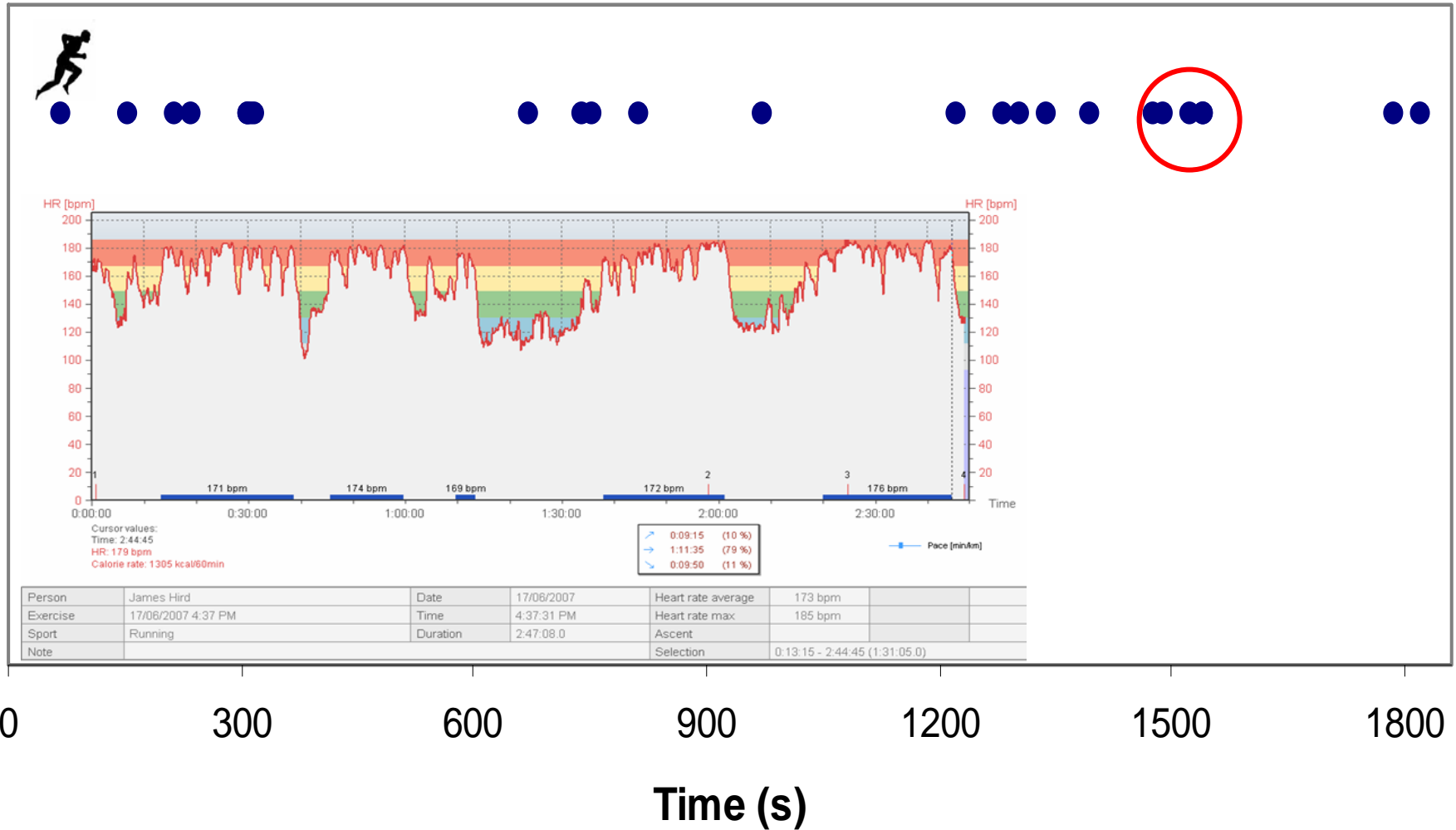




Fisiologia delle accelerazioni ripetute (RSA)



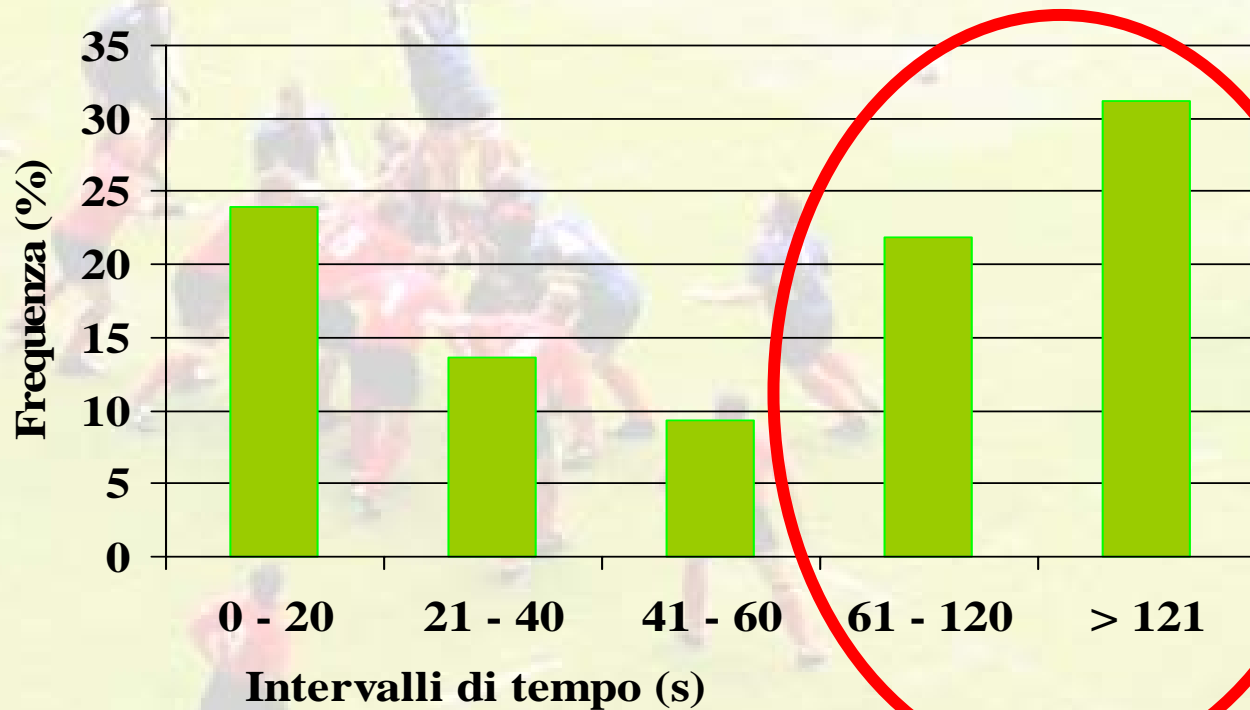
Hockey su prato





Repeated Sprinting

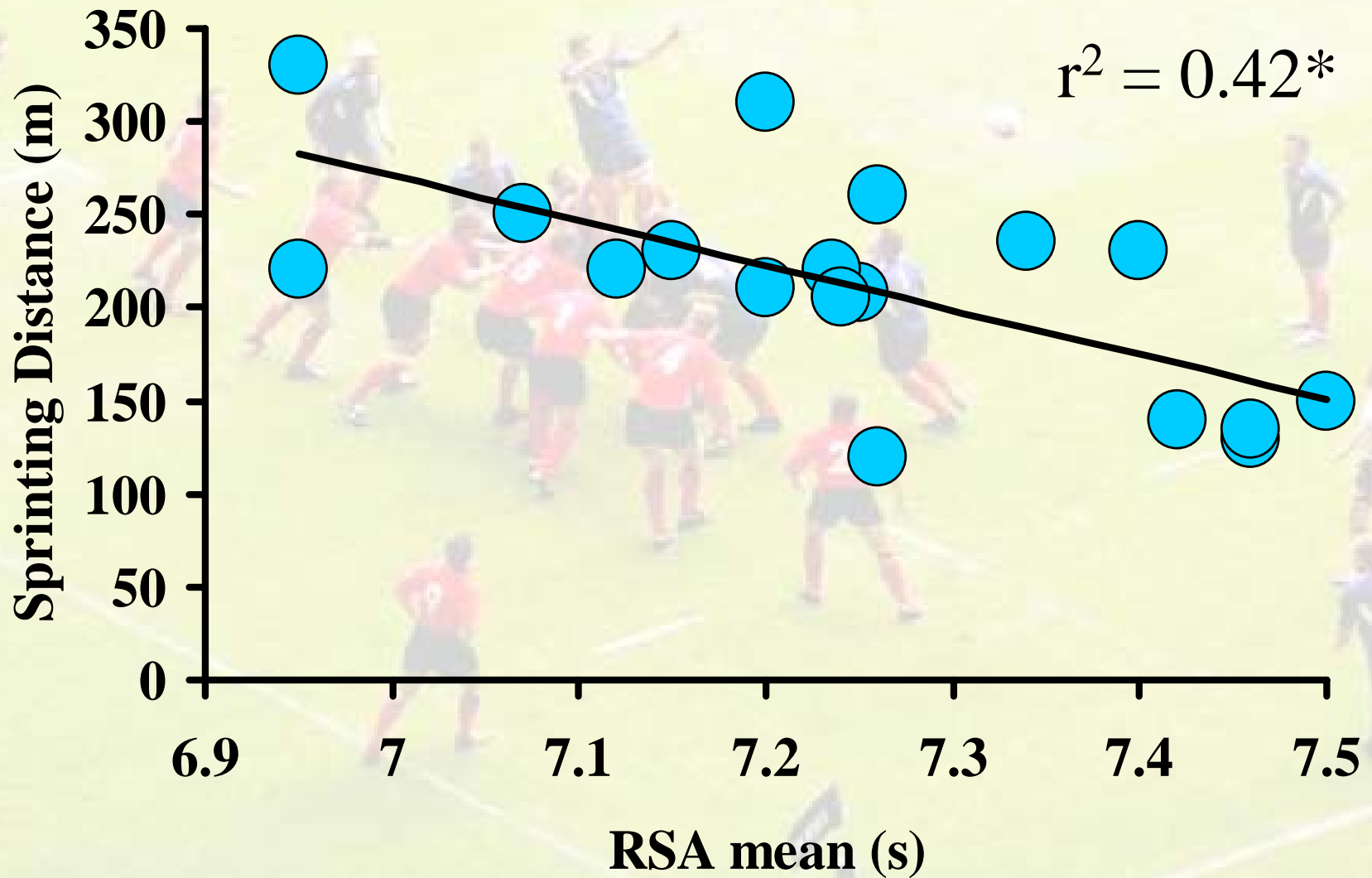
Frequenza di distribuzione del tempo di recupero tra gli sprints



Holmyard (1987) Foot Cong:134
Balsom (1992) IJSM 13:528-33



Importanza della RSA





Repeated-Sprint Ability (RSA)

- Gli sport di squadra richiedono sprint massimali o quasi massimali di breve durata (< 6 s) che sono spesso separati da brevi periodi di recupero (60 - 90 min)
- La RSA è una qualità importante negli atleti di sport di squadra come Rugby
- Tests di RSA predicono la distanza di corsa ad alta intensità e la distanza di sprint durante una partita di calcio professionale.

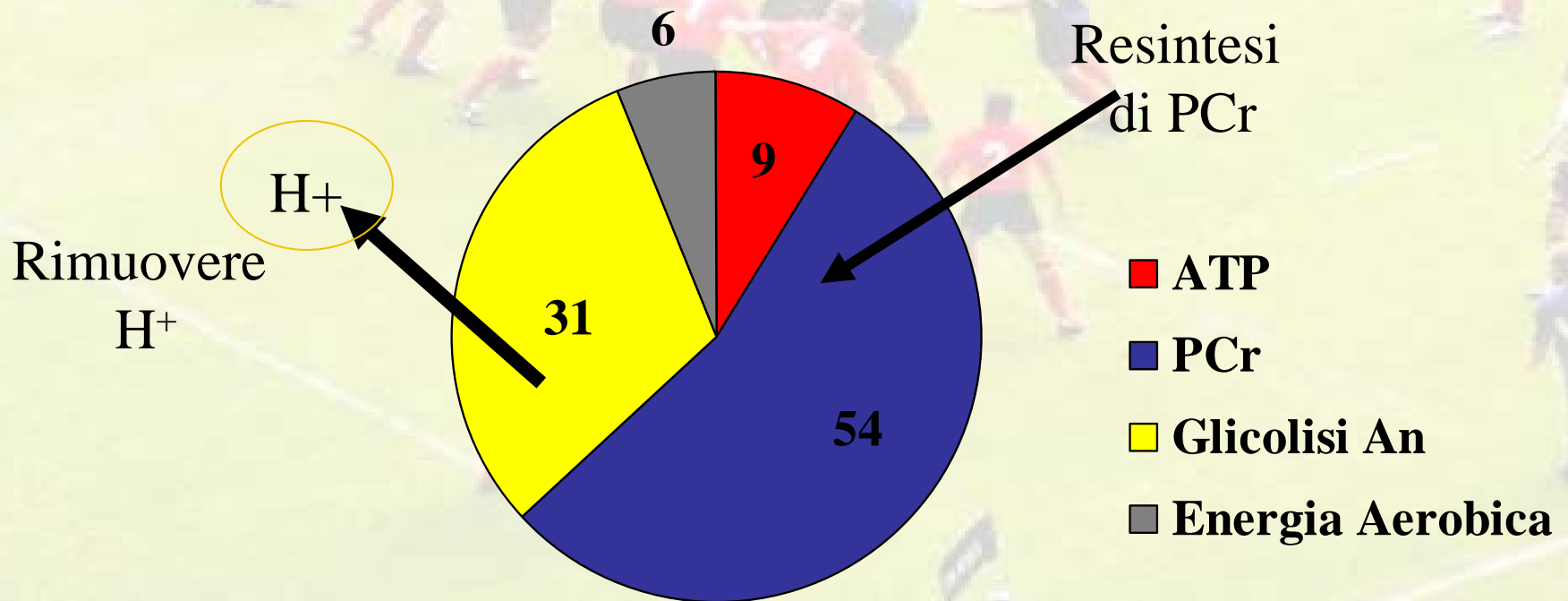




Determinanti della RSA?

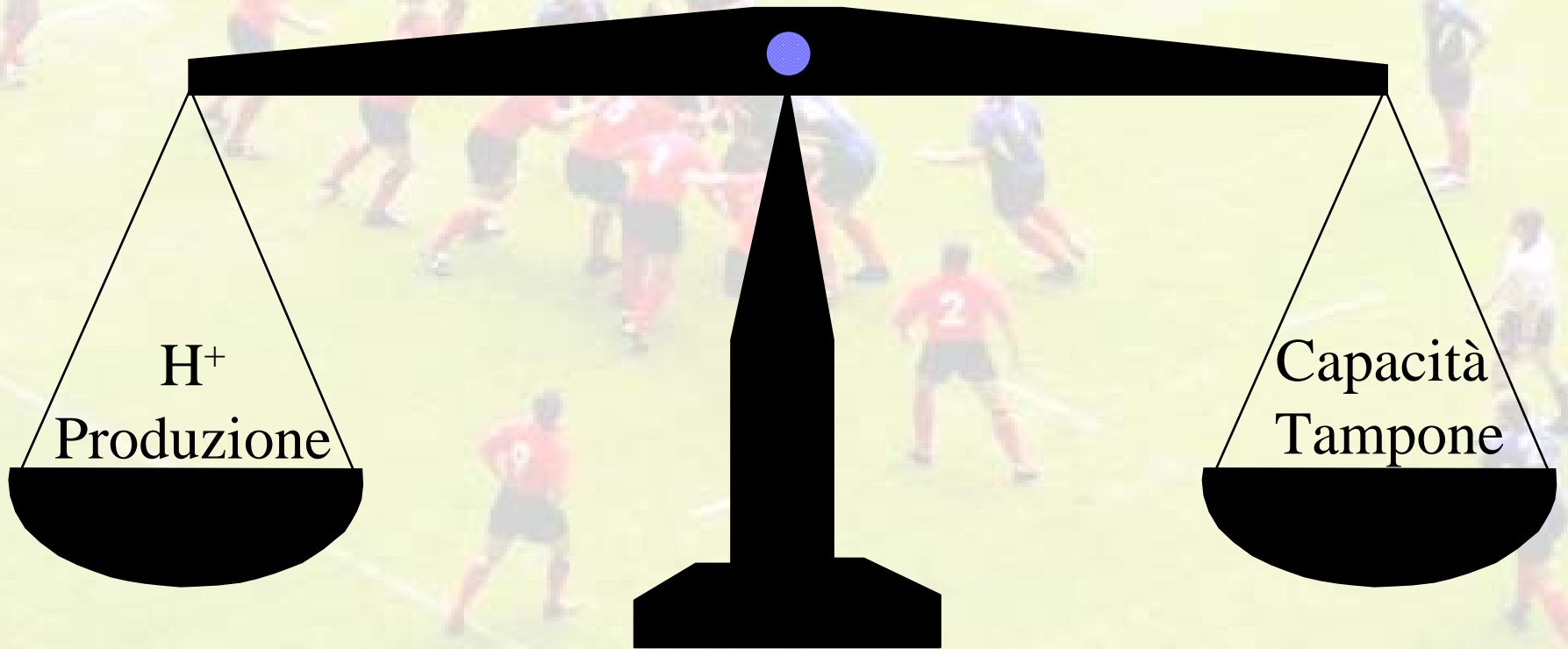
↳ Uno sprint massimale di breve durata richiede un'alta velocità di formazione di ATP

↳ grazie principalmente all'idrolisi della PCr e alla glicolisi anaerobica



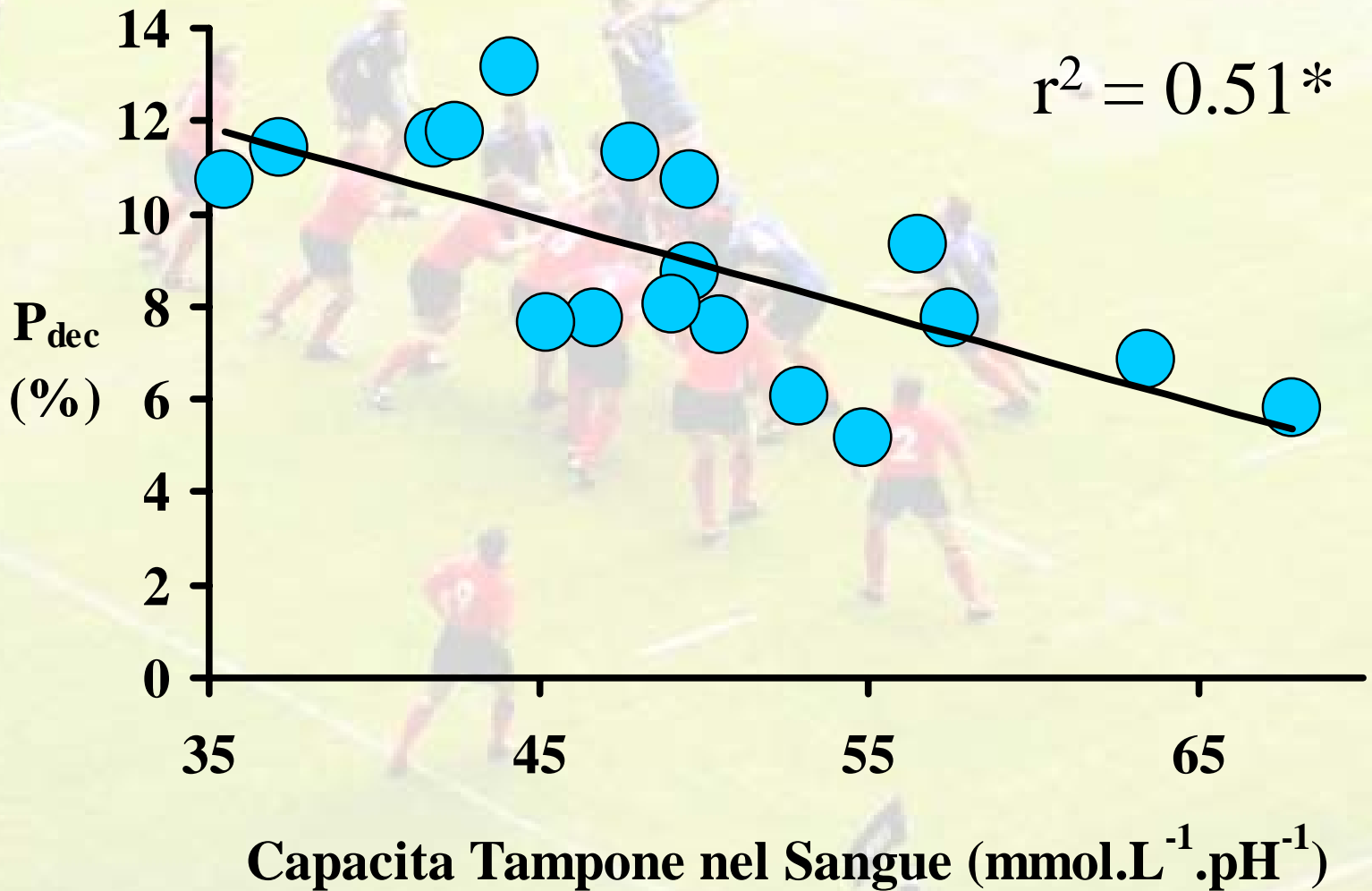


Accumulo di H^+





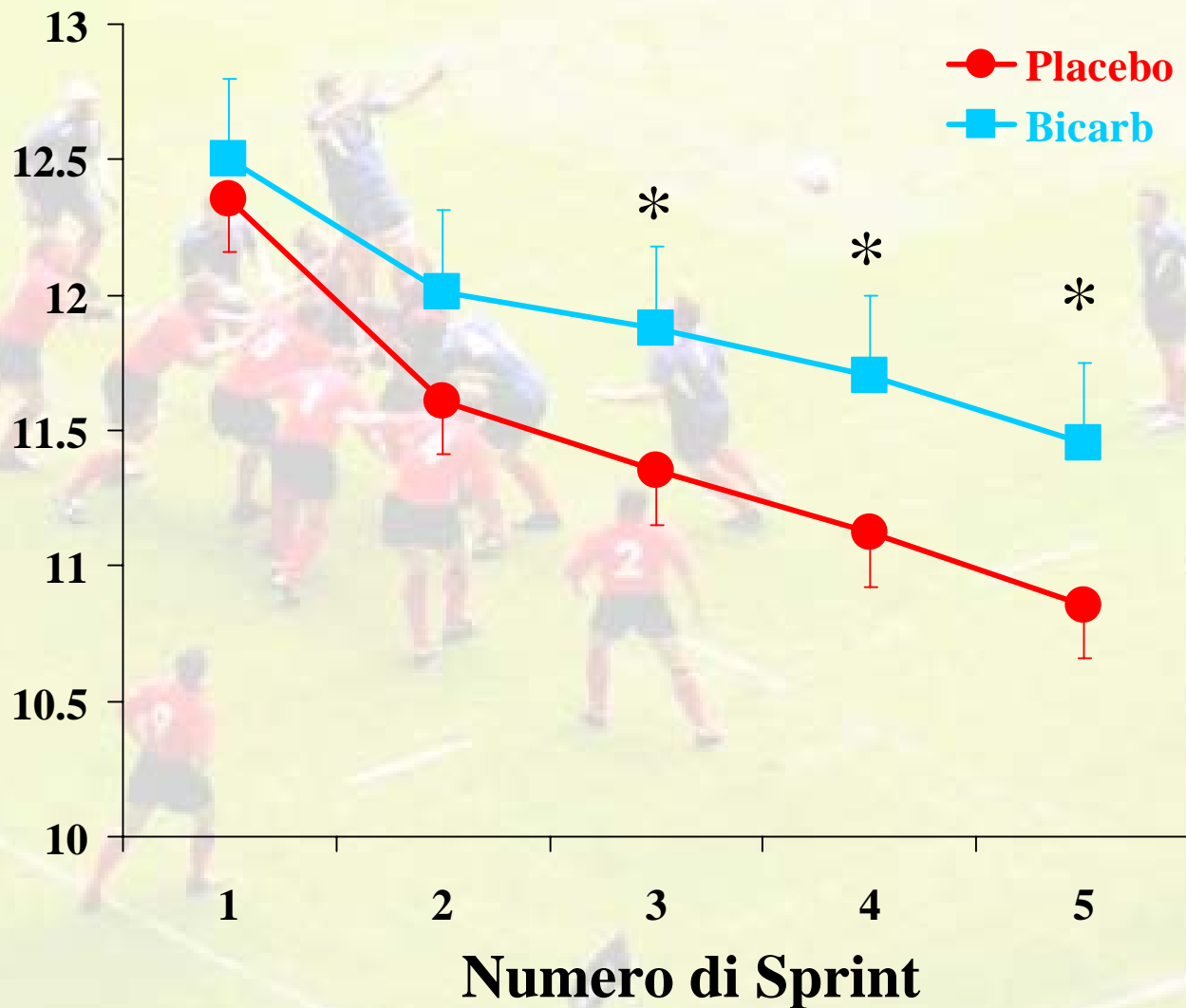
Capacità Tampone nel Sangue e RSA





NaHCO₃ e RSA

**Potenza Picco
(W·kg⁻¹)**

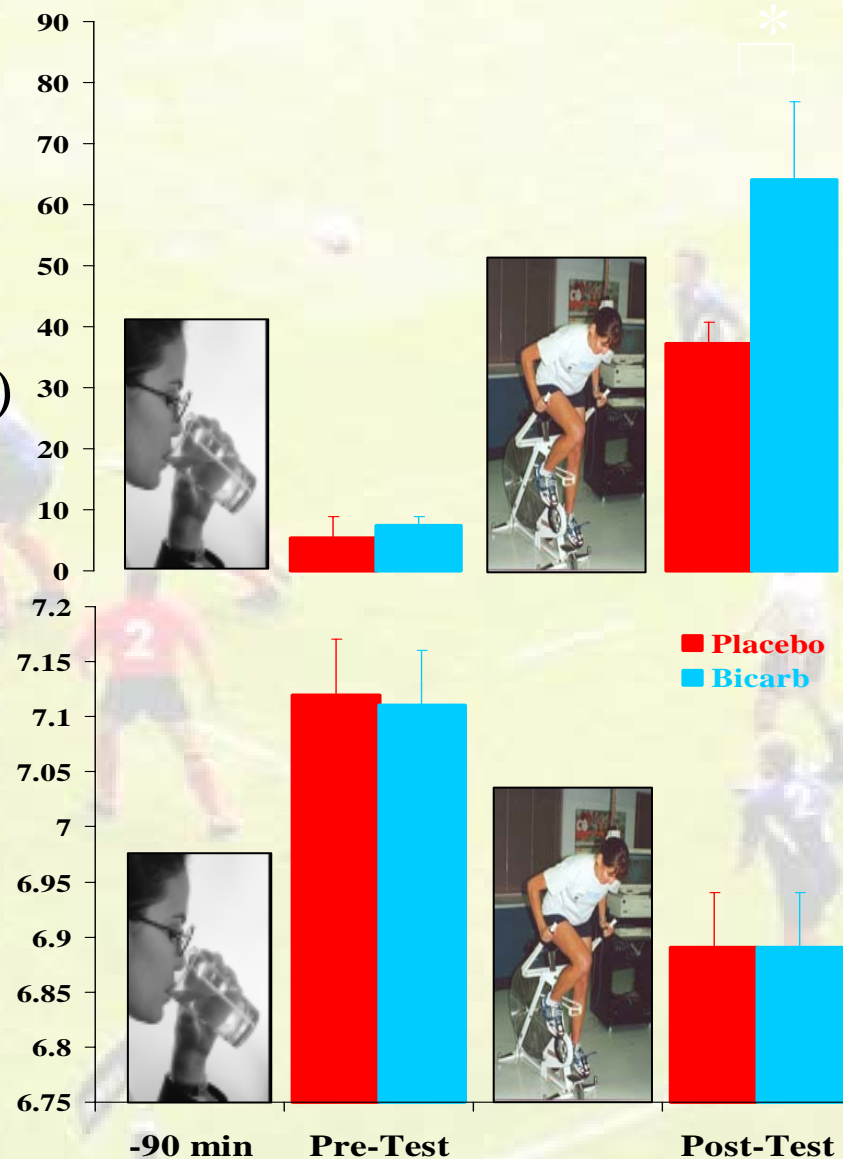




NaHCO₃ e Muscolo

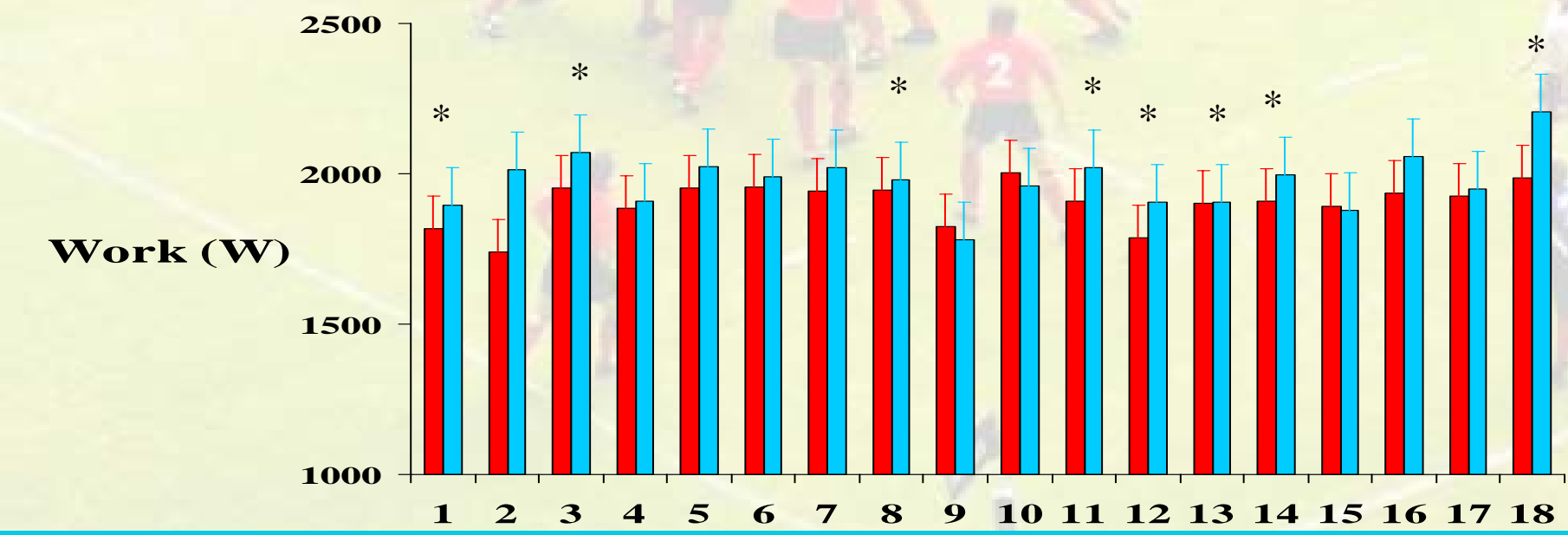
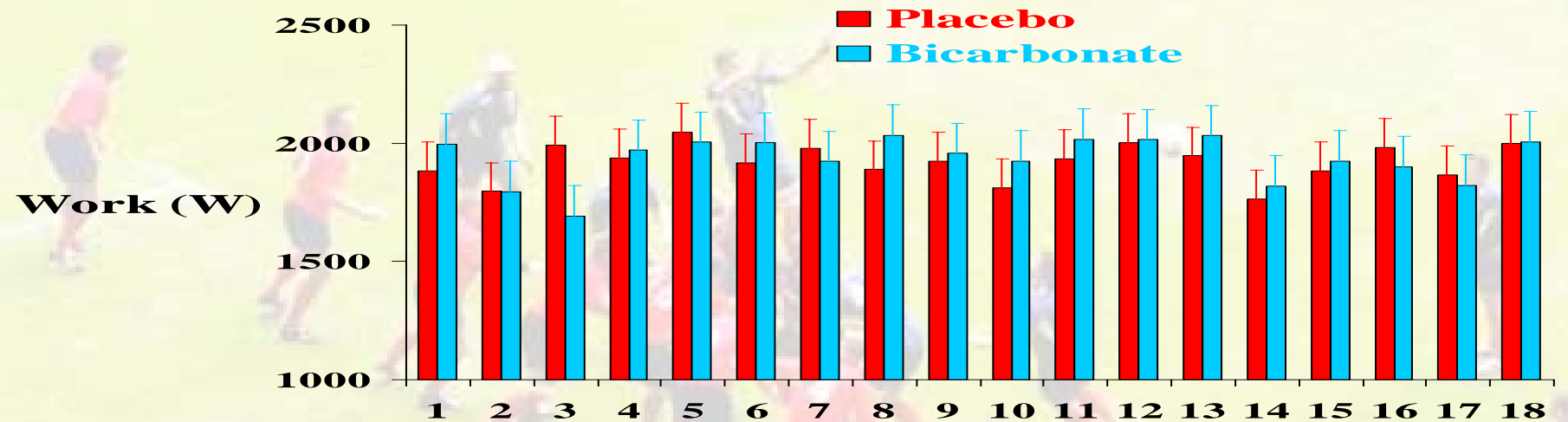
Lattato
(mmol·kg⁻¹·dm⁻¹)

pH



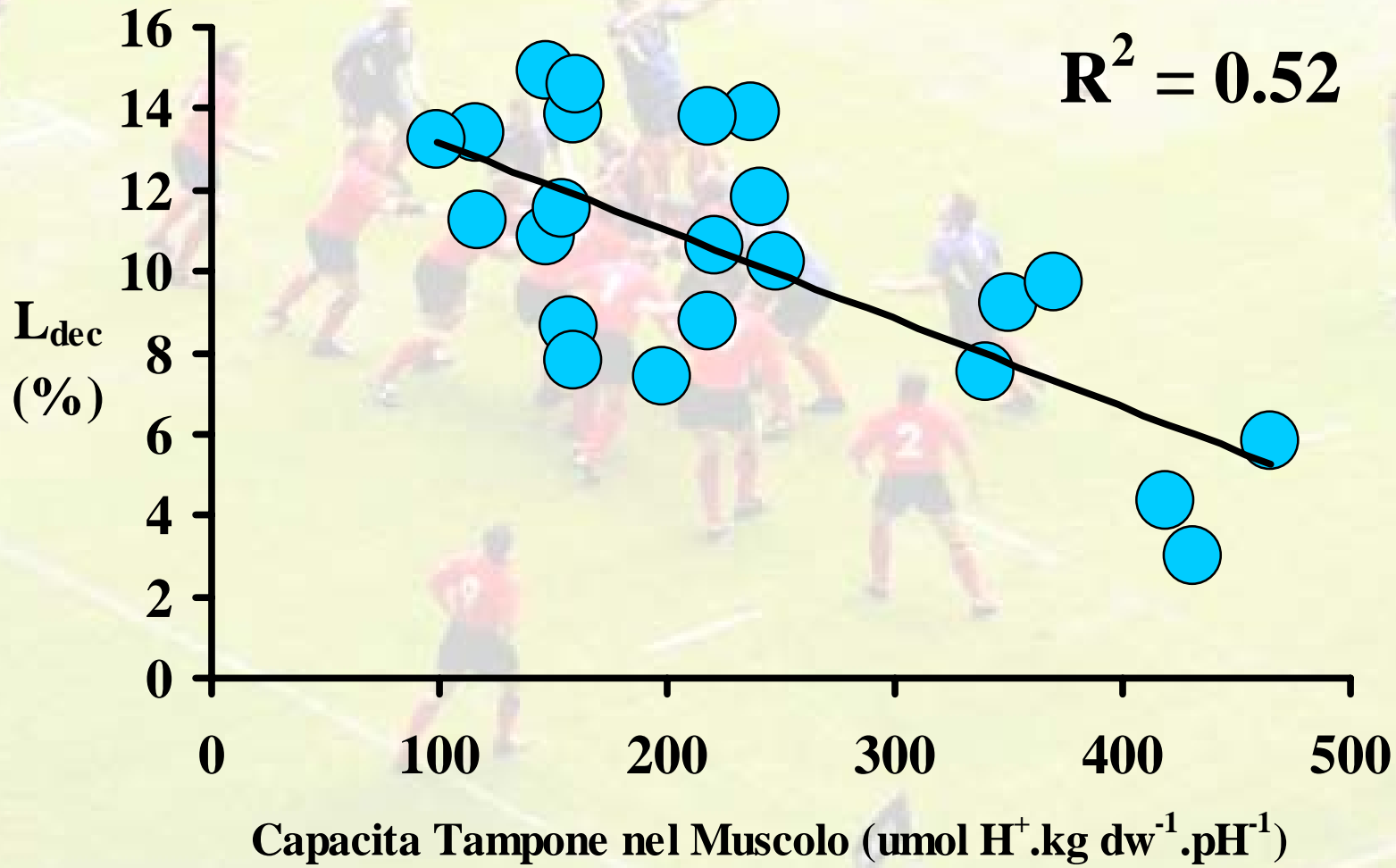


NaHCO₃ e RSA Prolungata





Capacità Tampone nel Muscolo



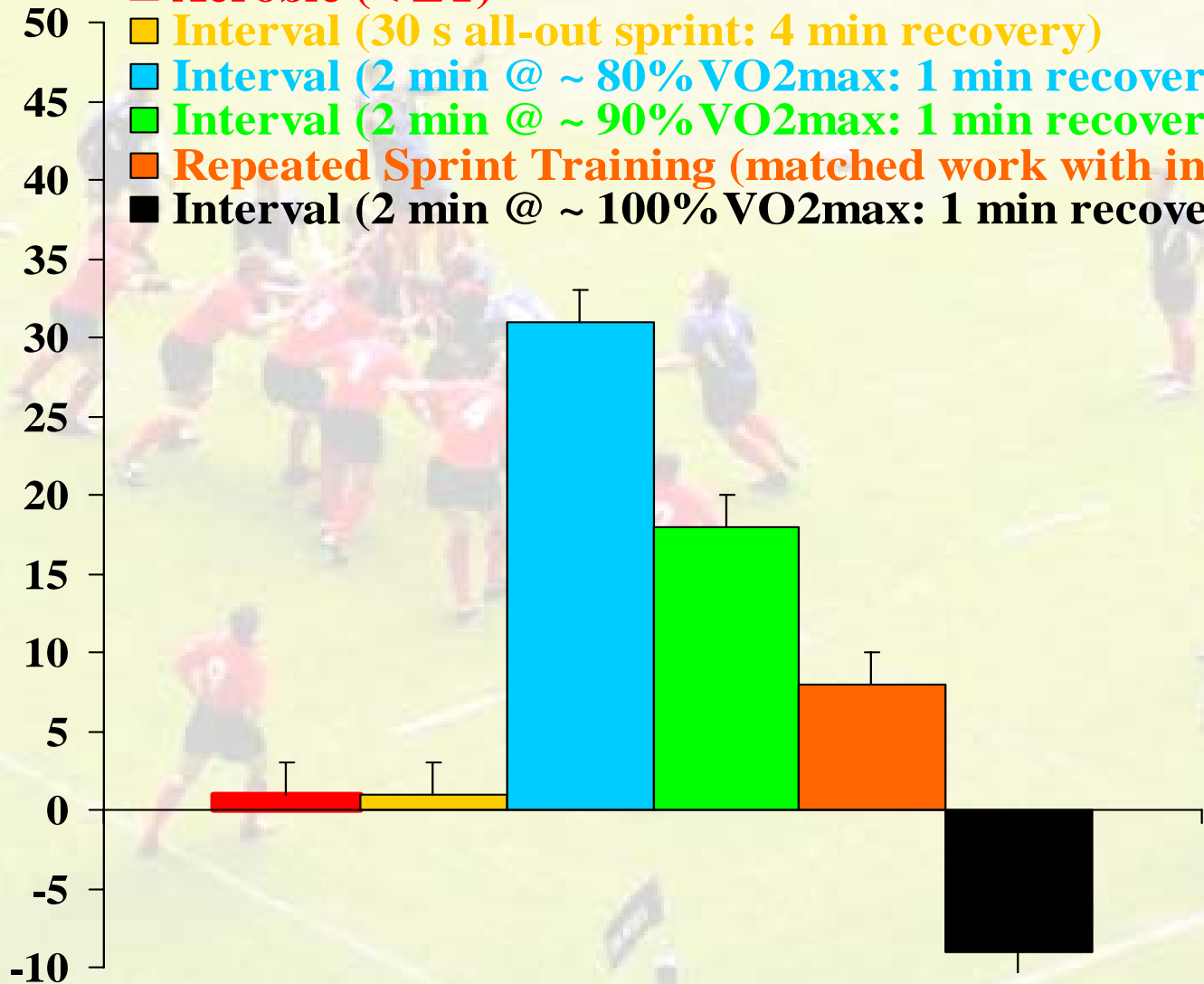
Bishop et al. (2004). *EJAP*. 92:540-547

Bishop, D. e Edge, J. (2006). *EJAP*. 97:373-379.



Come si può migliorare Bm?

- **Aerobic (< LT)**
- **Interval (30 s all-out sprint: 4 min recovery)**
- **Interval (2 min @ ~ 80% VO₂max: 1 min recovery)**
- **Interval (2 min @ ~ 90% VO₂max: 1 min recovery)**
- **Repeated Sprint Training (matched work with interval)**
- **Interval (2 min @ ~ 100% VO₂max: 1 min recovery)**



■ Edge, Bishop et al. (2005). EJAP. 96:97-105.

■ Harmer et al. (2000). JAP. 89:1793-1803.

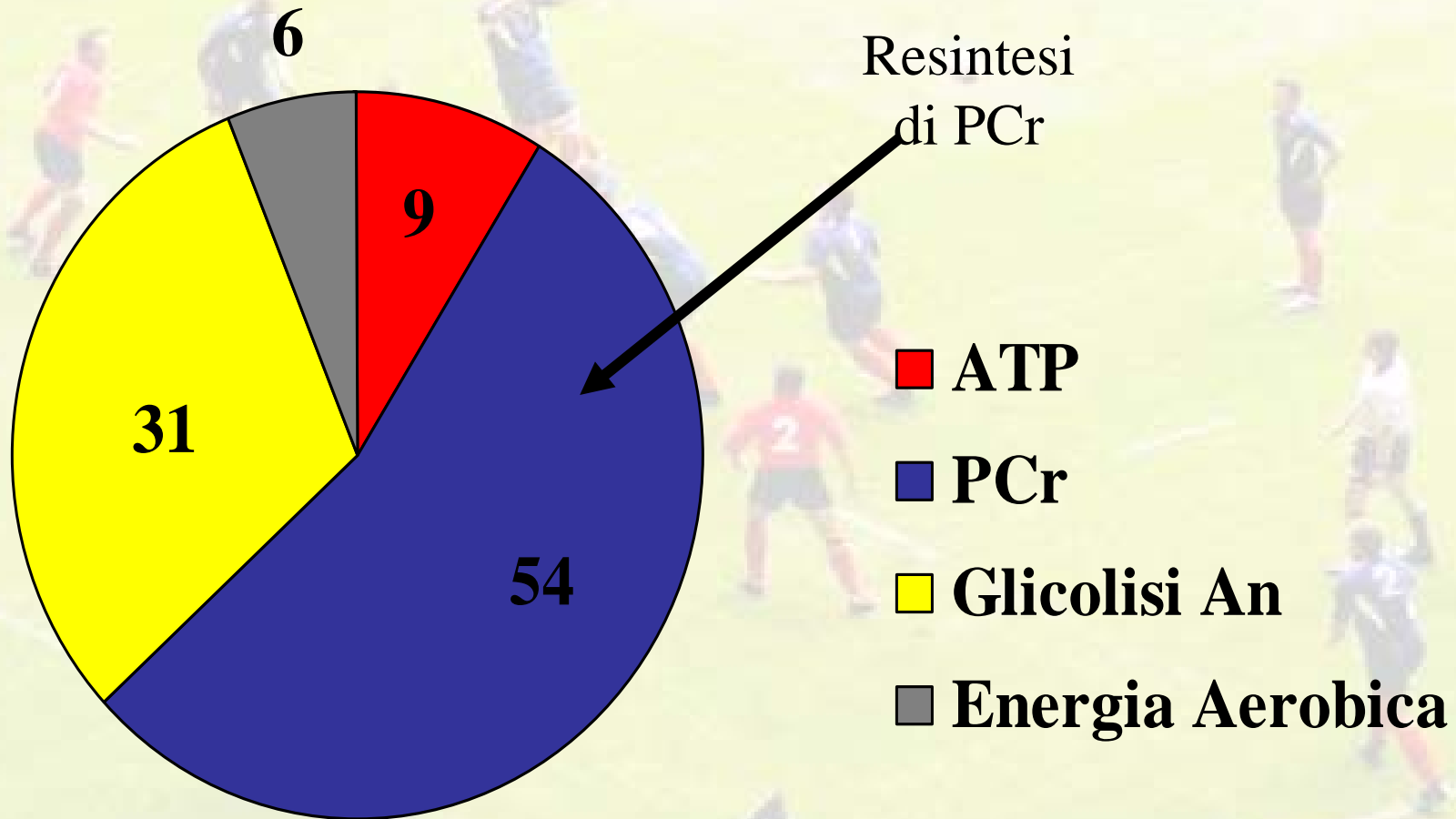
■ Edge & Bishop. (2006). JAP. 101:918-925.

■ Edge & Bishop. (2007). Am J Phys. In Review.

■ Bishop et al.. (2007). Unpublished.



Determinanti della RSA?

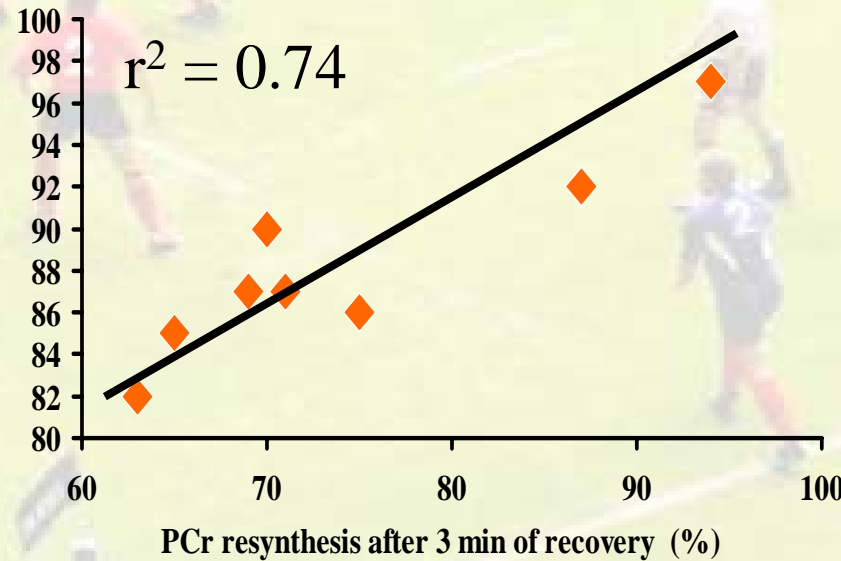
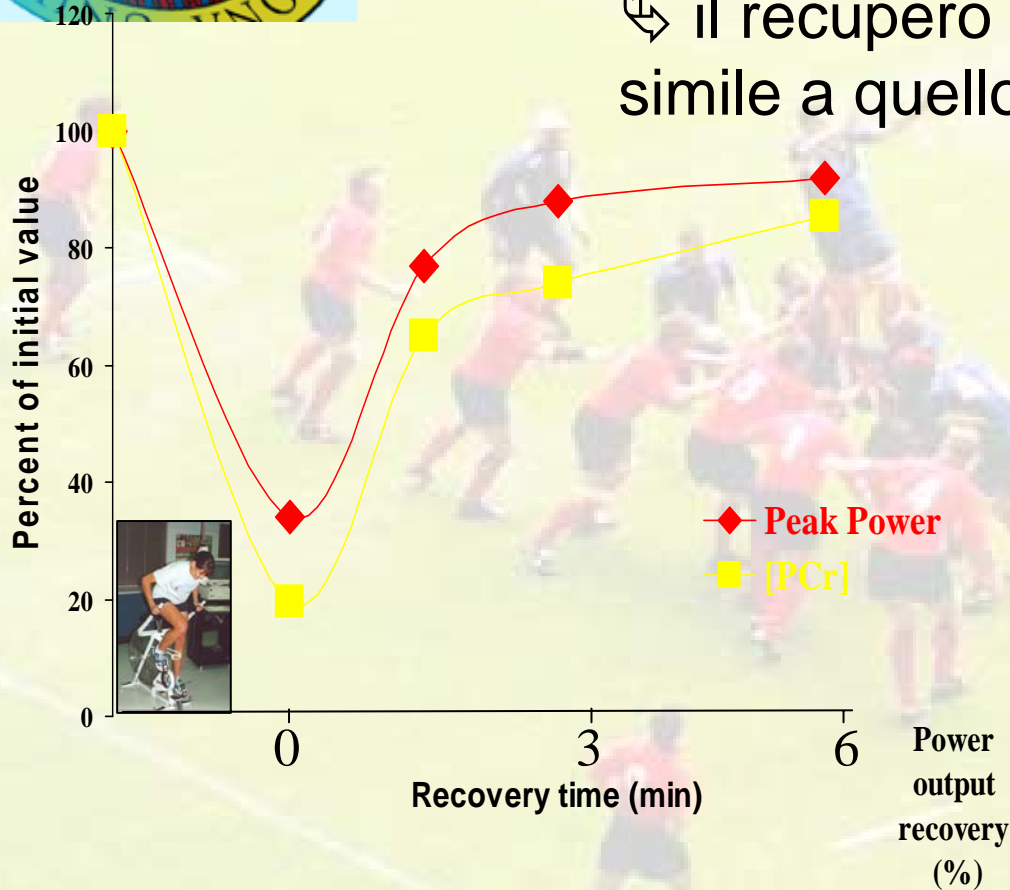




PCr e potenza sviluppata

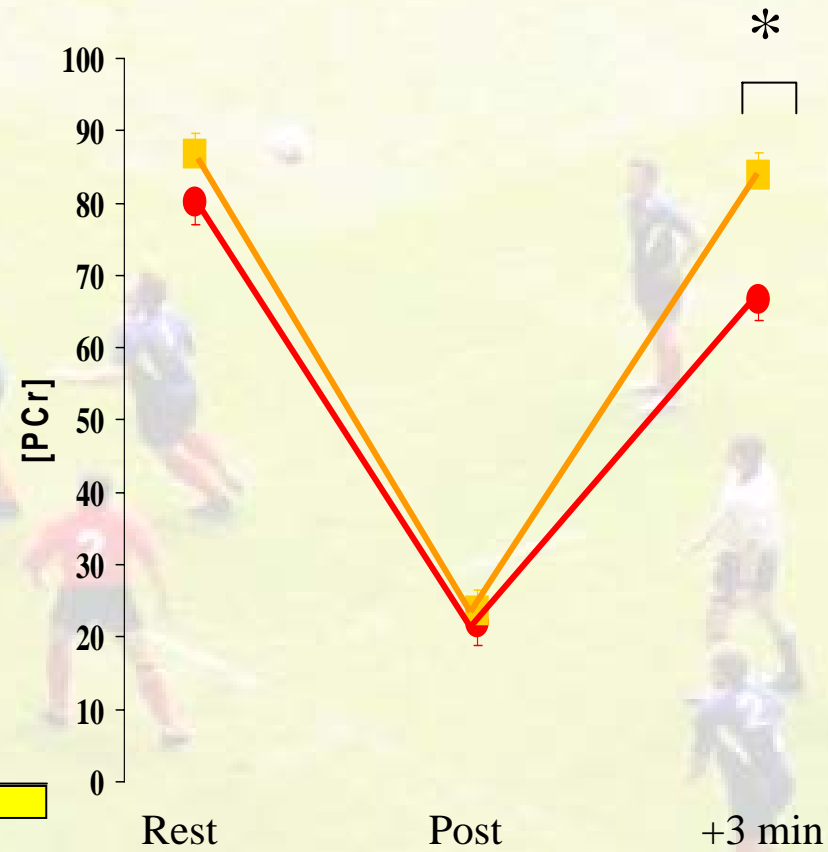
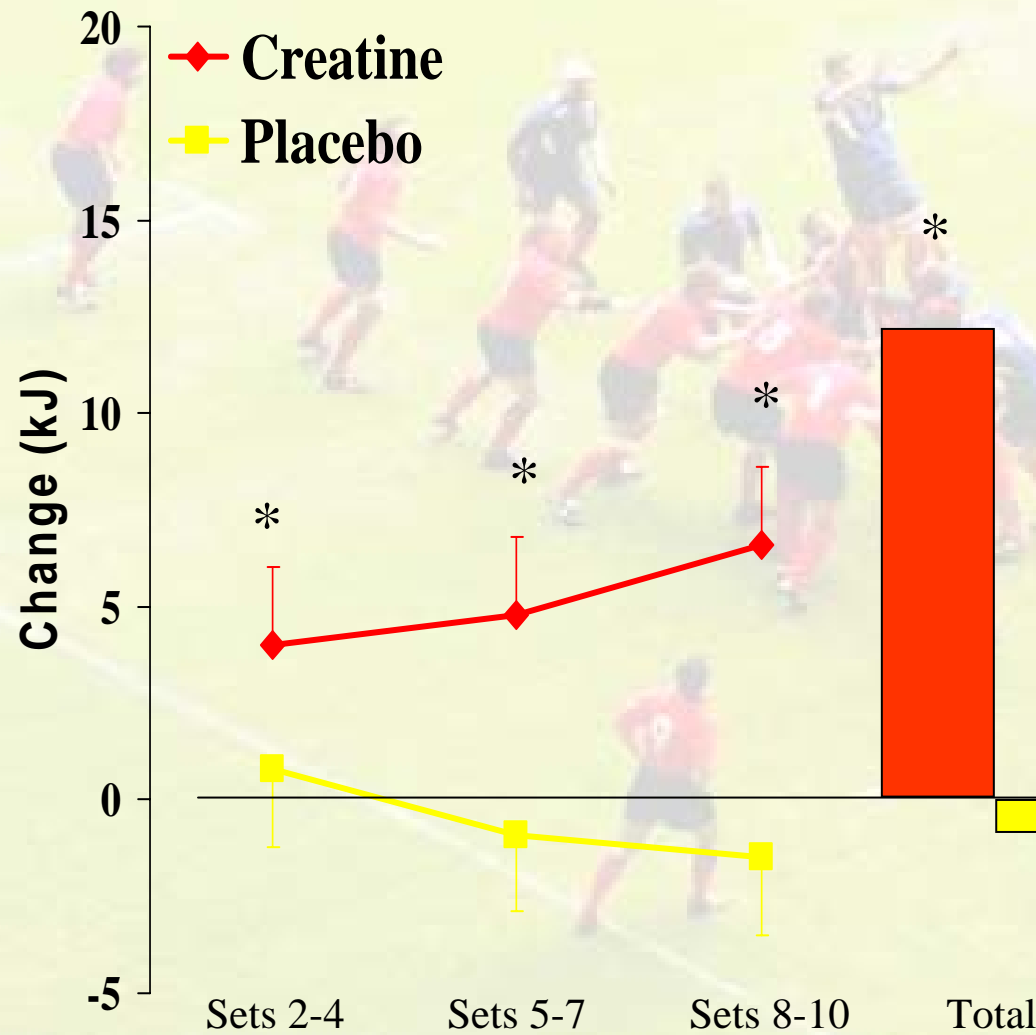
↪ il recupero della potenza segue un tempo simile a quello della resintesi della PCr

(Bogdanis et al., 1995)





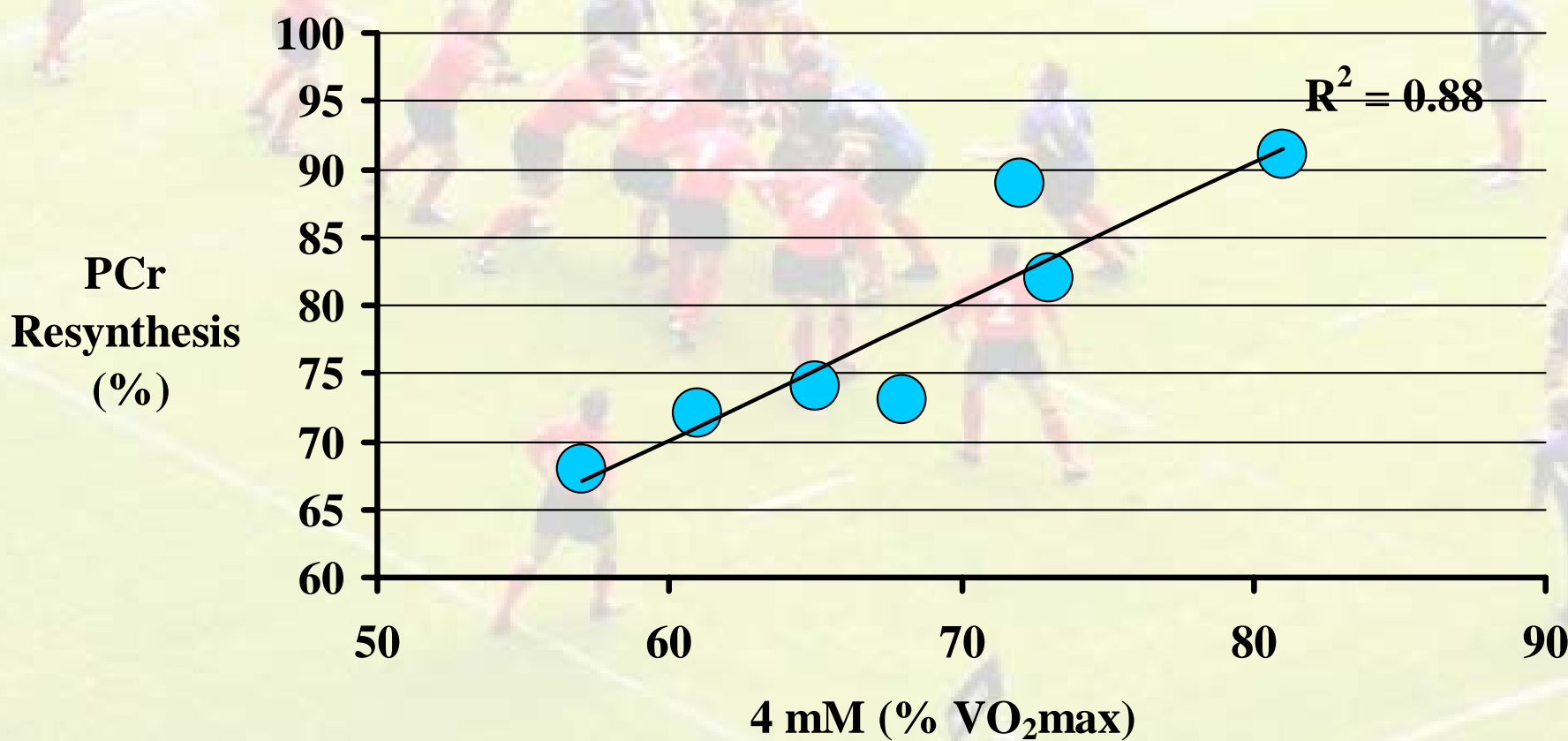
Creatina e RSA





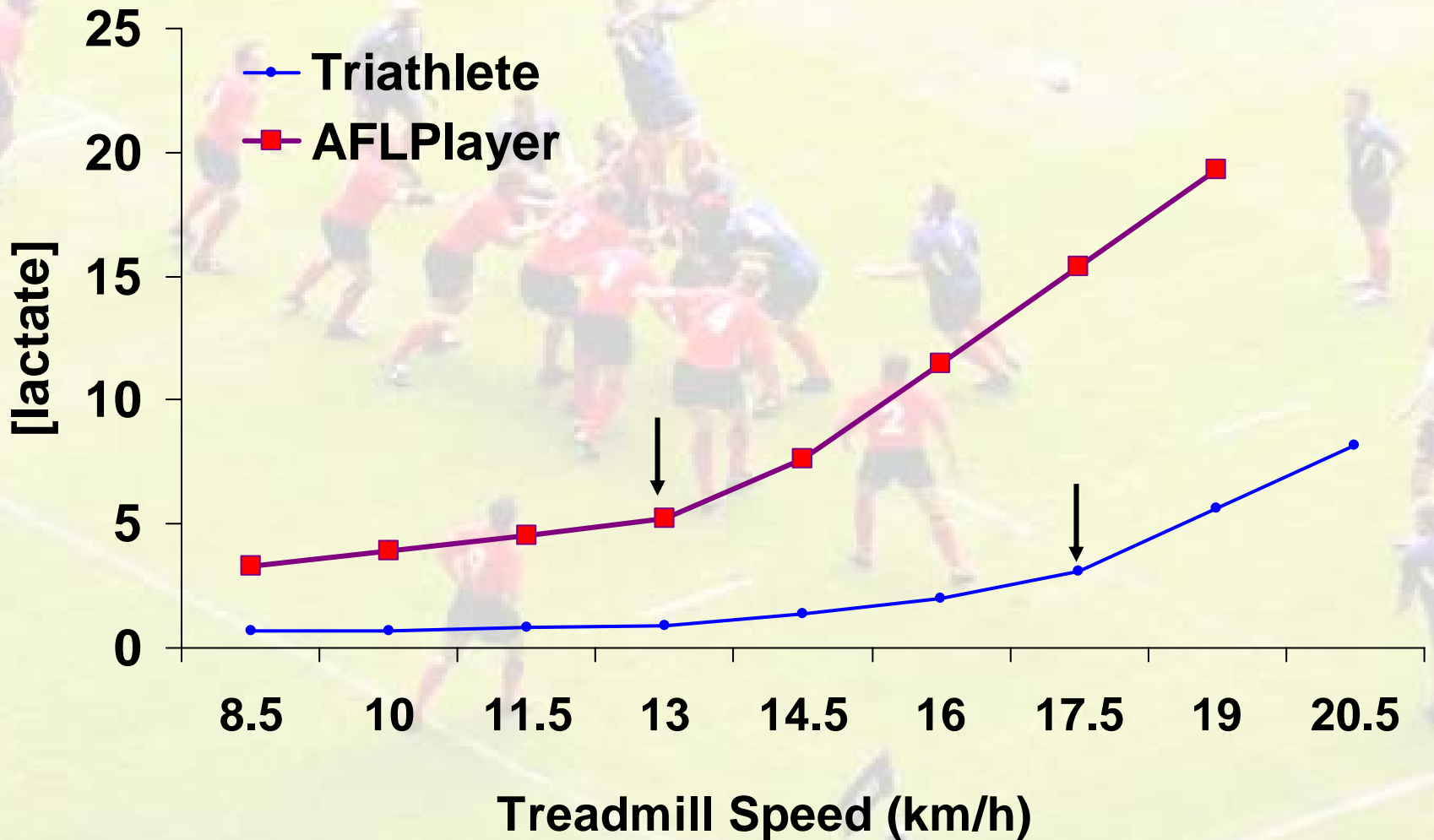
resintesi di PCr e fitness aerobico

↪ La resintesi di PCr e' correlata al fitness aerobico (% 4mM)



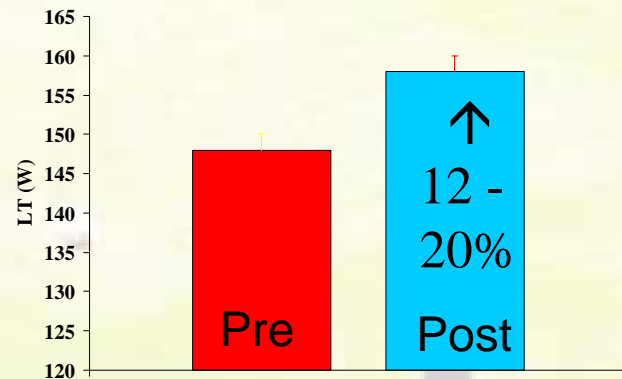
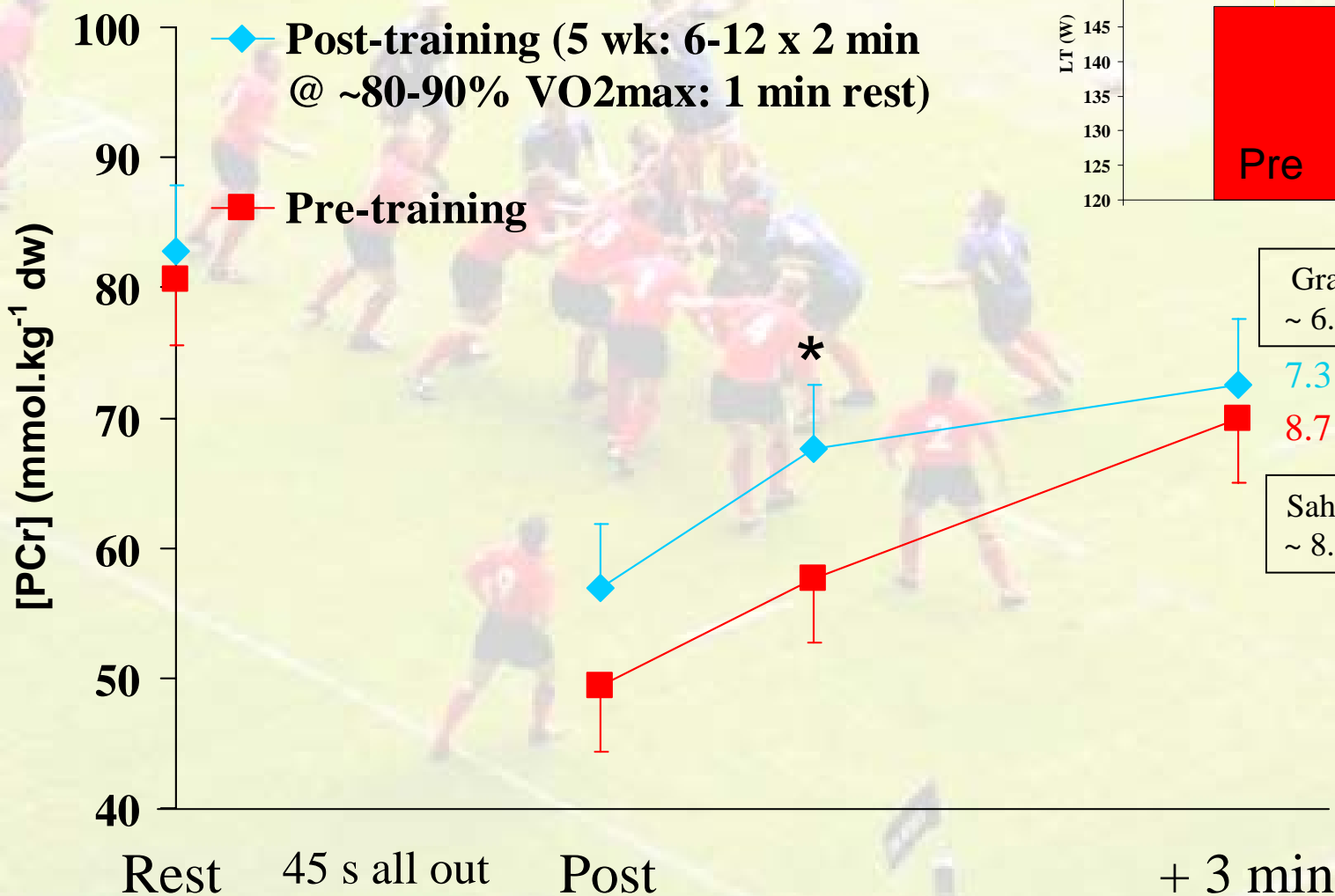


La soglia e sport di squadra?





Allenamento e Resintesi di PCr



Graham et al. (1990)
~ 6.9 mmol.kg⁻¹.min⁻¹
7.3 mmol.kg⁻¹.min⁻¹
8.7 mmol.kg⁻¹.min⁻¹

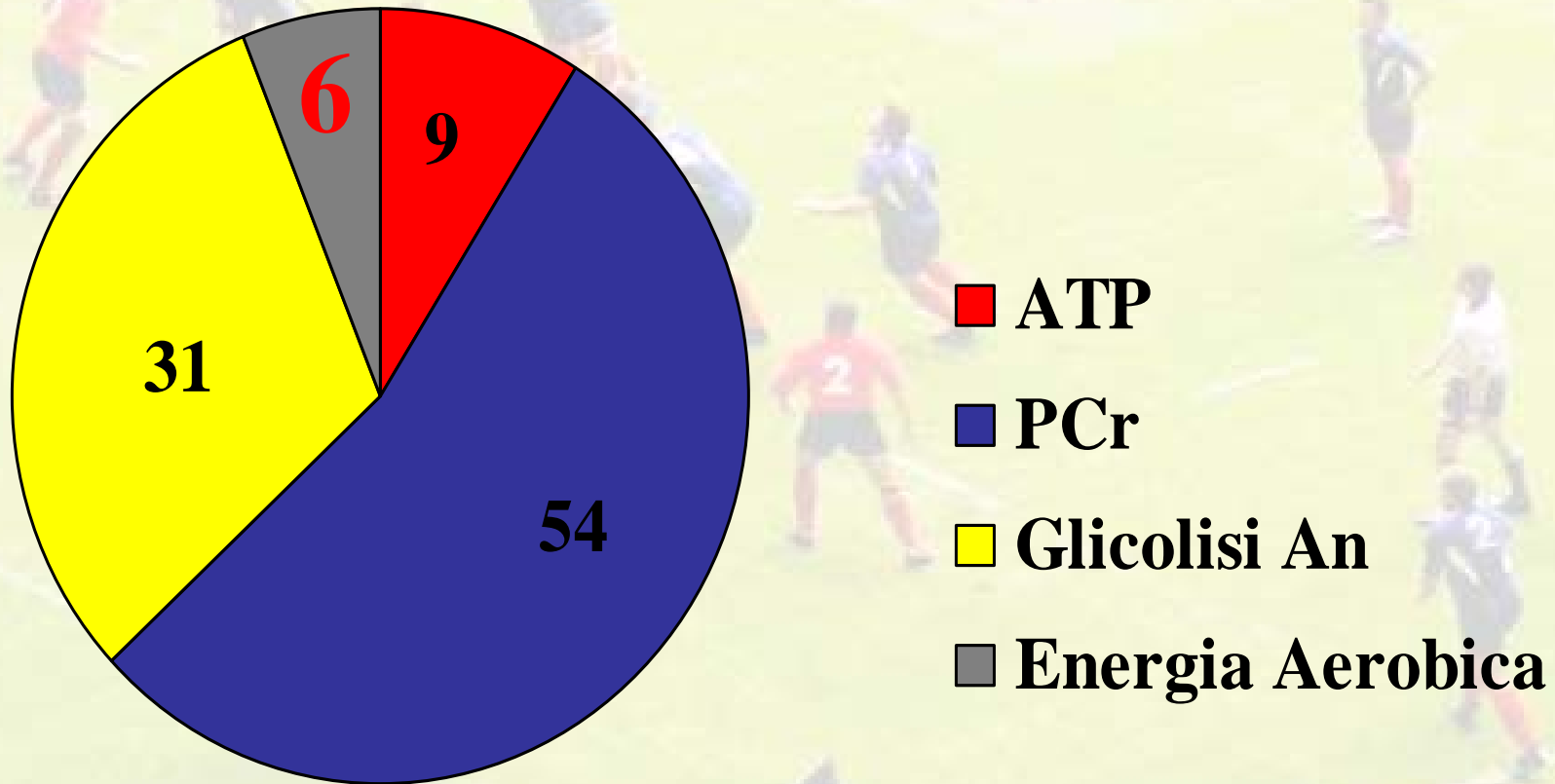
Sahlin & Ren. (1989)
~ 8.3 mmol.kg⁻¹.min⁻¹



- Sembrerebbe che la resintesi della PCr sia importante per la RSA
- Altri studi sono richiesti per determinare il migliore allenamento per aumentare la resintesi della PCr
- Allenamento intervallato (2 min @ 80-90% VO_{2max} : 1 min), che migliora VO_{2max} e la soglia del lattato, può migliorare la resintesi rapida della PCr



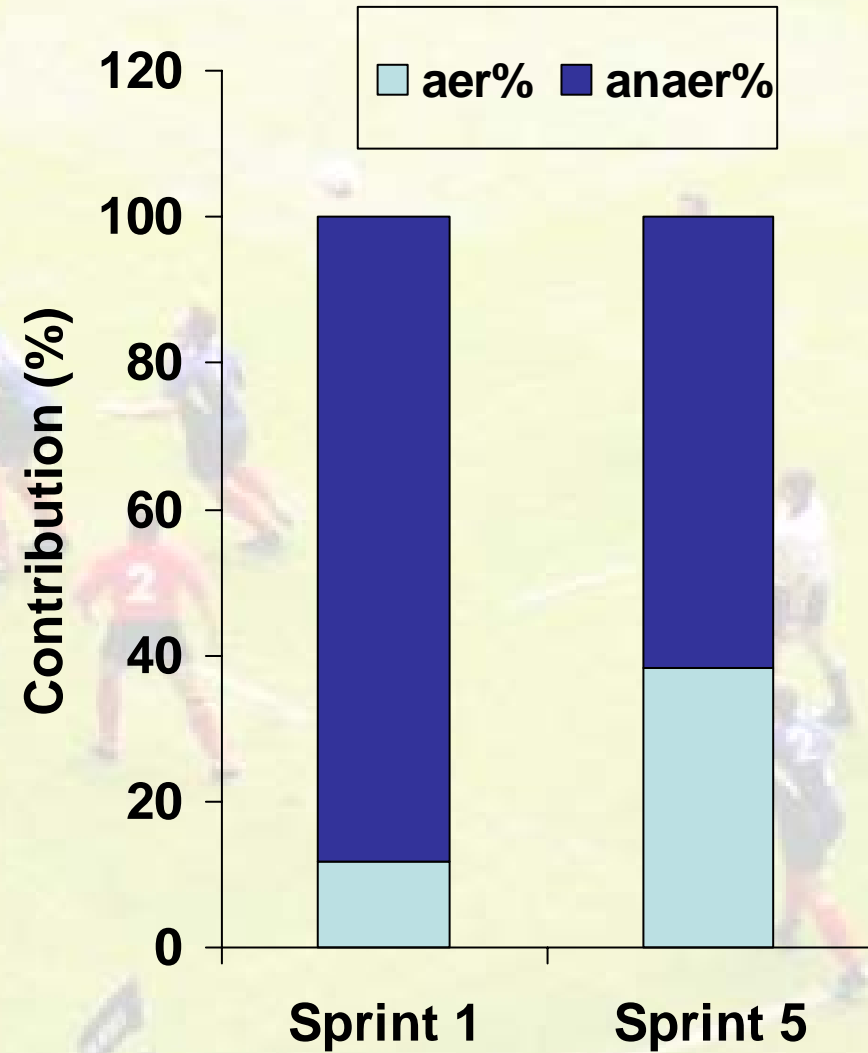
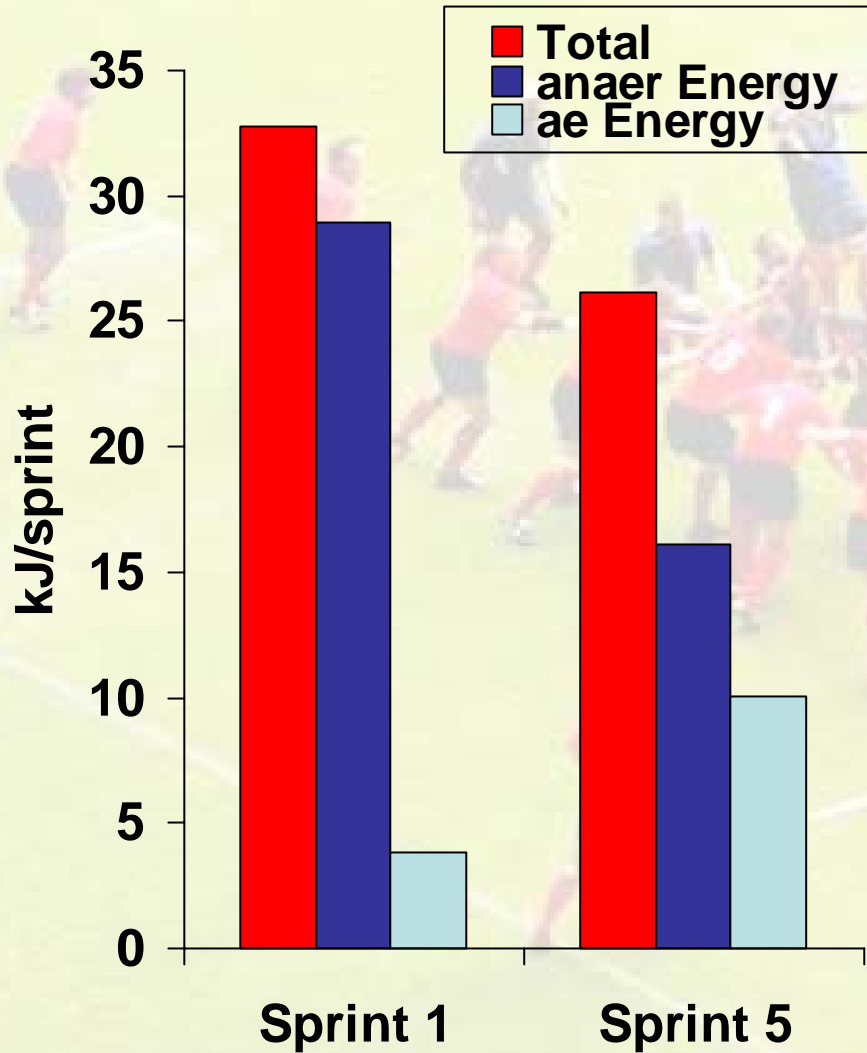
Determinanti della RSA?



Fatto con dati da Gaitanos, (1993), Medbo, (1999), Gastin, (2001), Hultman, (1983), Parolin, (1999), McGawley & Bishop (2007).

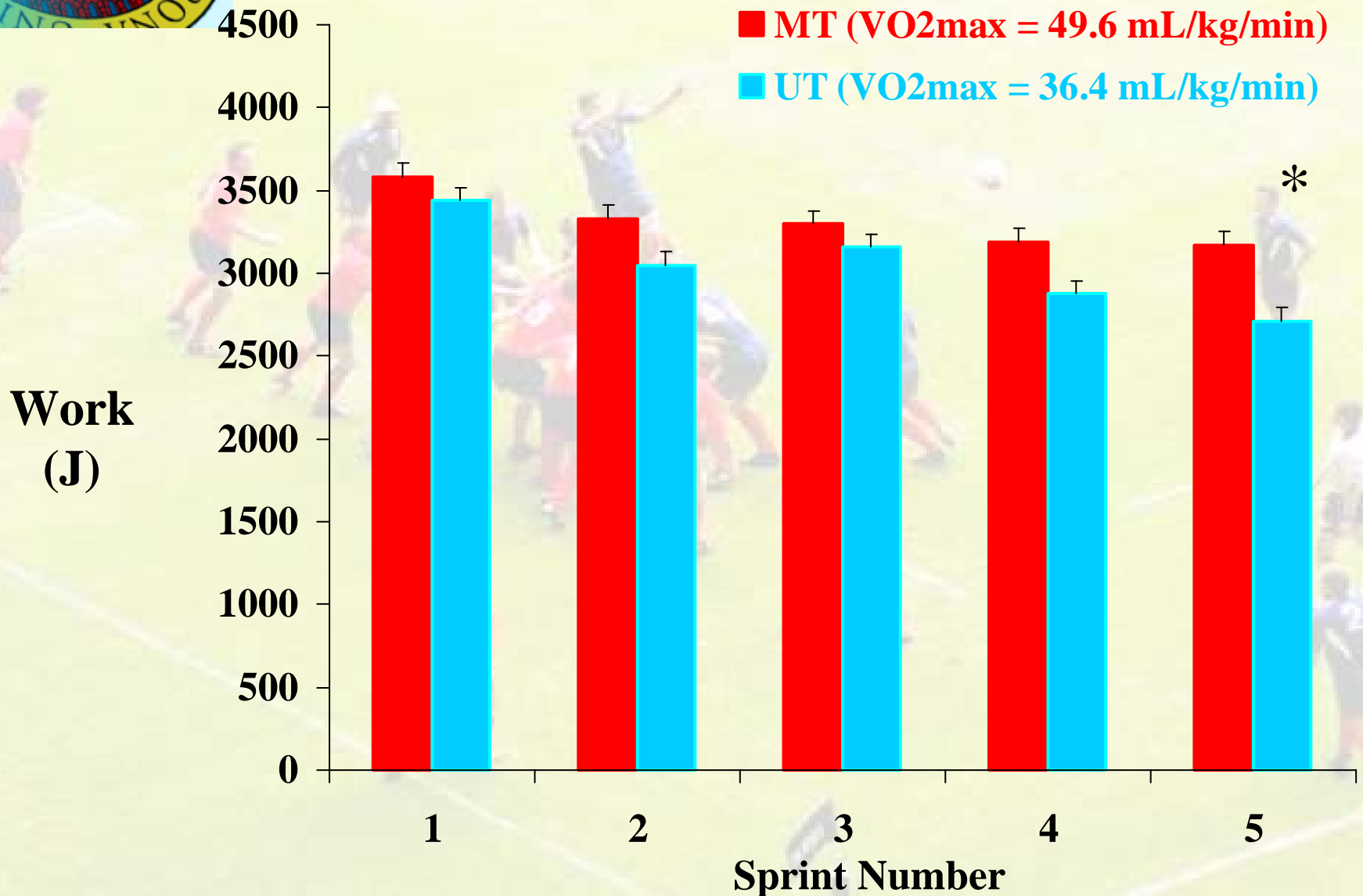


Fitness Aerobico



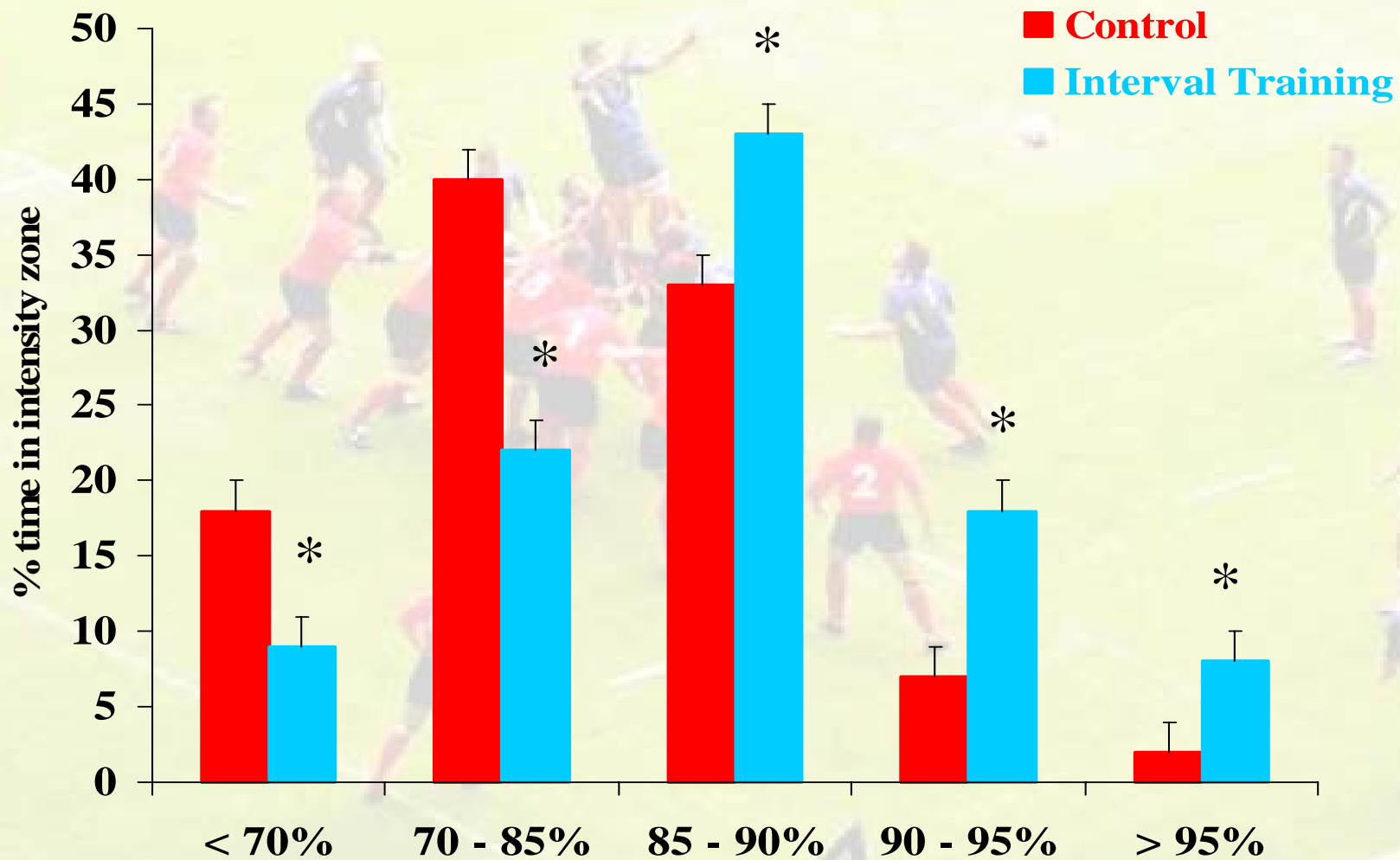


RSA & aerobic fitness?





aerobic fitness & prestazione di squadra



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Dal laboratorio al campo...From the laboratory to the field...