

# Blackcurrant intake: Athletes pay attention!



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**inflammation**

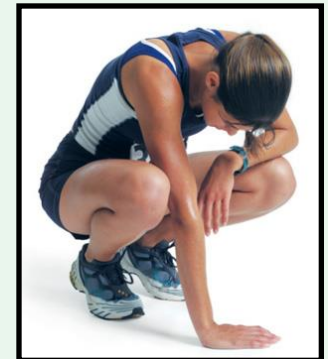
**fatigue**

**oxidative stress**

**immune response**



**exercise**



**recovery**



**exercise**



**recovery**

**functional  
foods**



# Outline

- **Why the interest in blackcurrant?**
- **Effects of New Zealand blackcurrant on exercise performance**



- **An exciting take home prediction**
- **Future directions**
  - a challenging and busy road ahead!

# Outline

- **Why the interest in blackcurrant?**







The 2011 Netherlands National Triathlon Elite team became the first national sports team in the world to use a natural Blackcurrant powder as part of their training programme. The powder, developed by New Zealand company, Sujon Berryfruits, **assists recovery** from physiological stress after training.



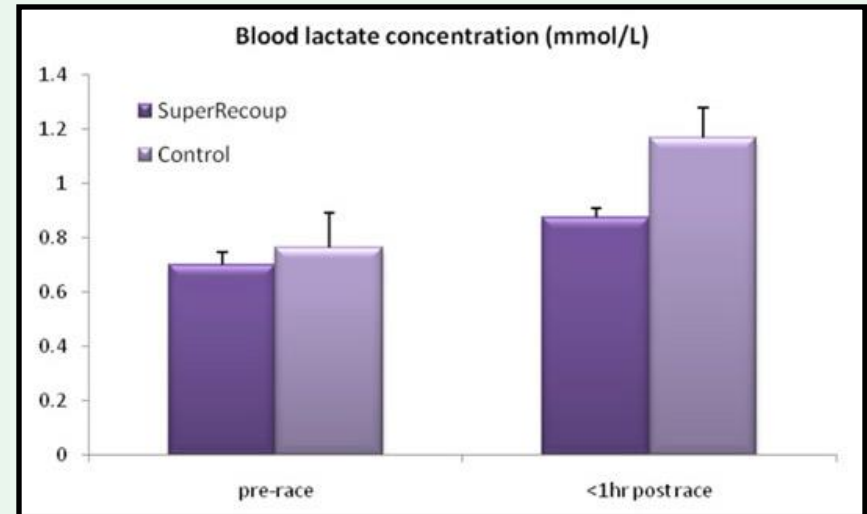
# 2011

# What initiated our research with blackcurrant

<http://www.equinerecoup.co.uk/recoupscience.htm>



## 160 km race



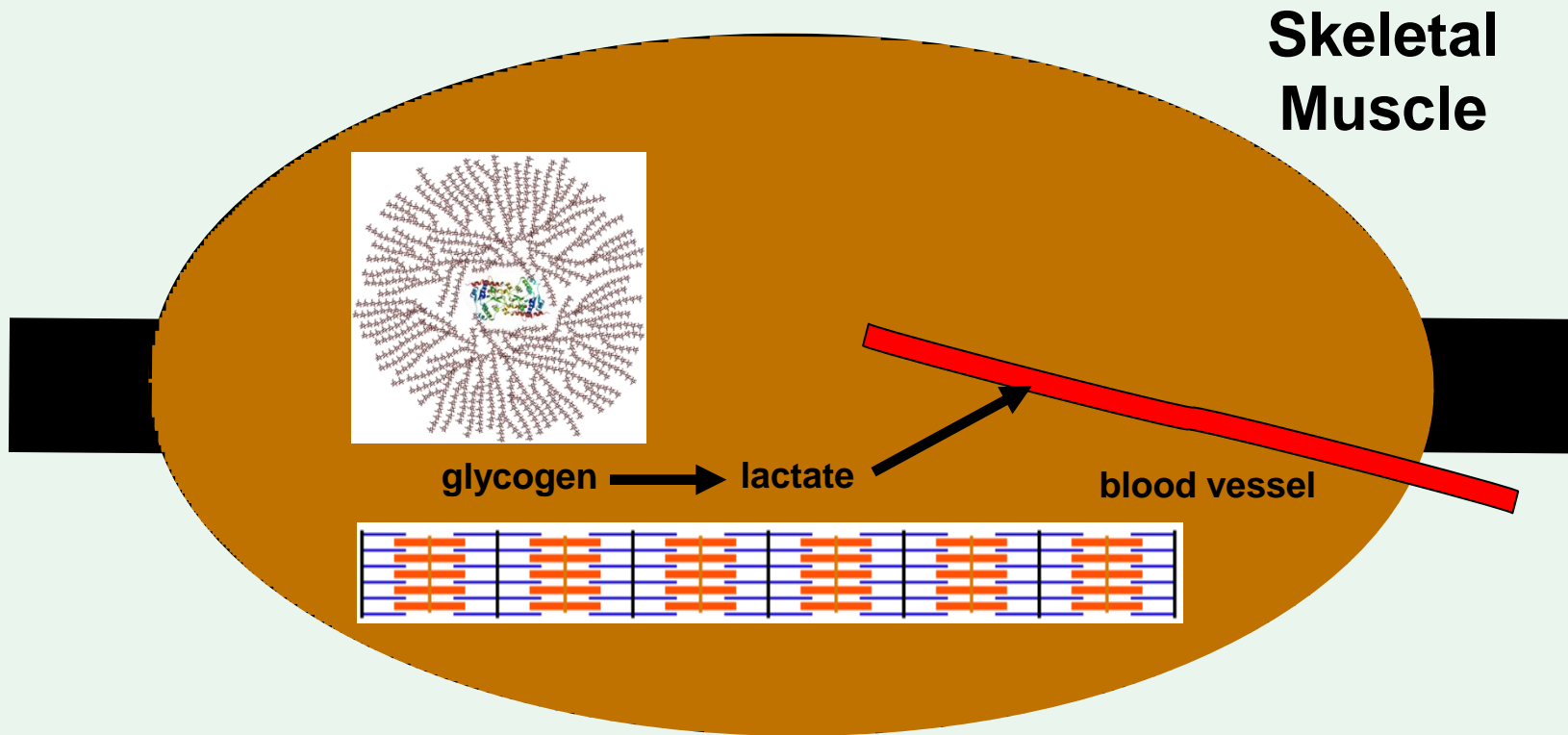
**Equine RECOUP™**  
SUPER RECOVERY - NATURALLY™

Equine Recoup™ Supports a Rapid Recovery from Muscle Damage and Fatigue

[www.superrecovery.com](http://www.superrecovery.com)

**SRL**  
NEW ZEALAND

# Exercise and Lactate



**High levels of lactate are associated with muscle fatigue**

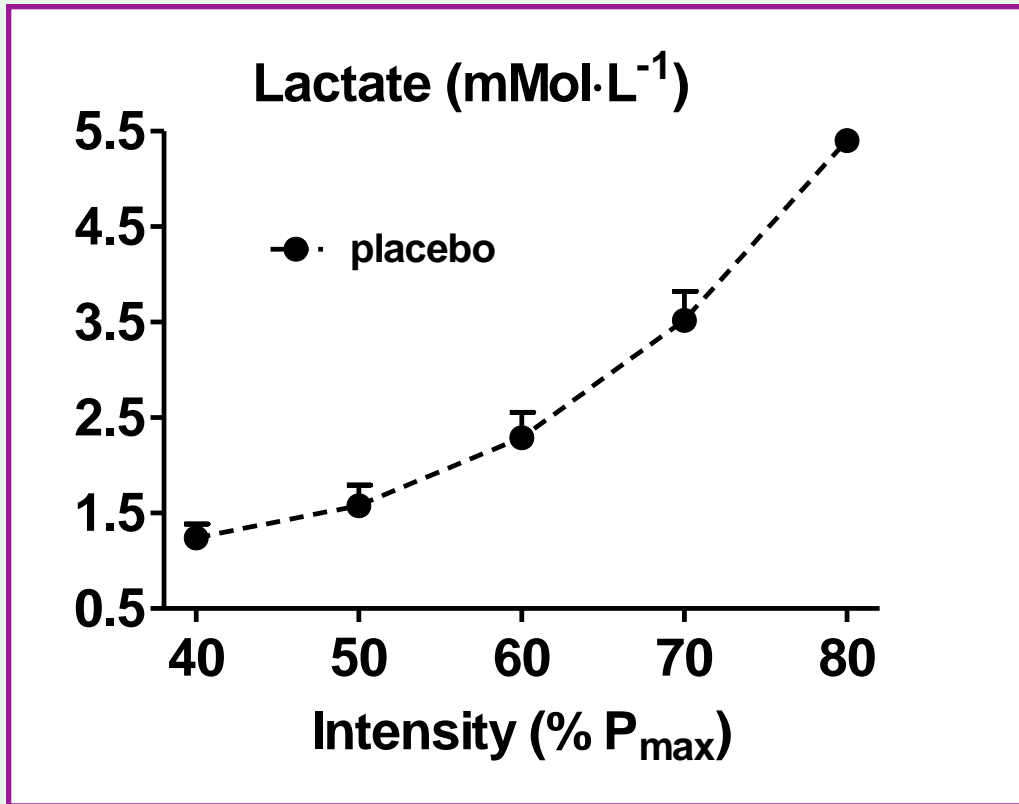


## **Beneficial Physiological Effects With Blackcurrant Intake in Endurance Athletes**

# **Exercise and Lactate**



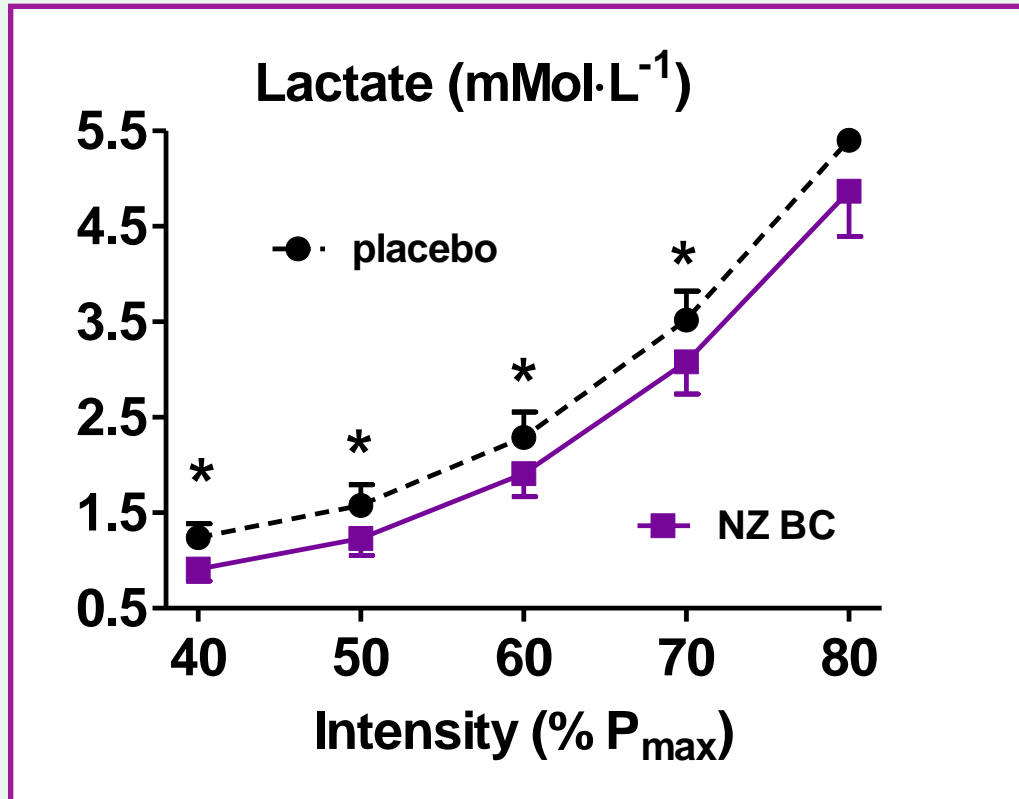
- the lactate curve



***n* = 13 (triathletes)**

~110 mg anthocyanins/day for 7 days

- the lactate curve



~110 mg anthocyanins/day for 7 days



*n* = 13 (triathletes)



6 g/day for 7 days

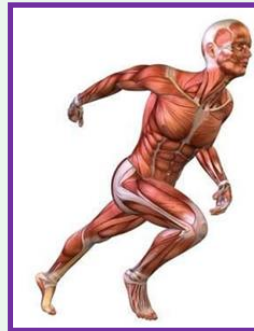
**New Zealand blackcurrant resulted in a complete shift of the lactate curve**

# Outline



- **Effects of New Zealand blackcurrant on exercise performance**

exercise performance



## endurance exercise

- 16.1 km cycling time trial

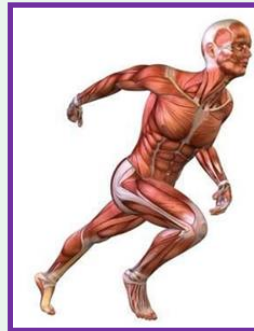
## Highly aerobic exercise

# Outline



- **Effects of New Zealand blackcurrant on exercise performance**

exercise performance

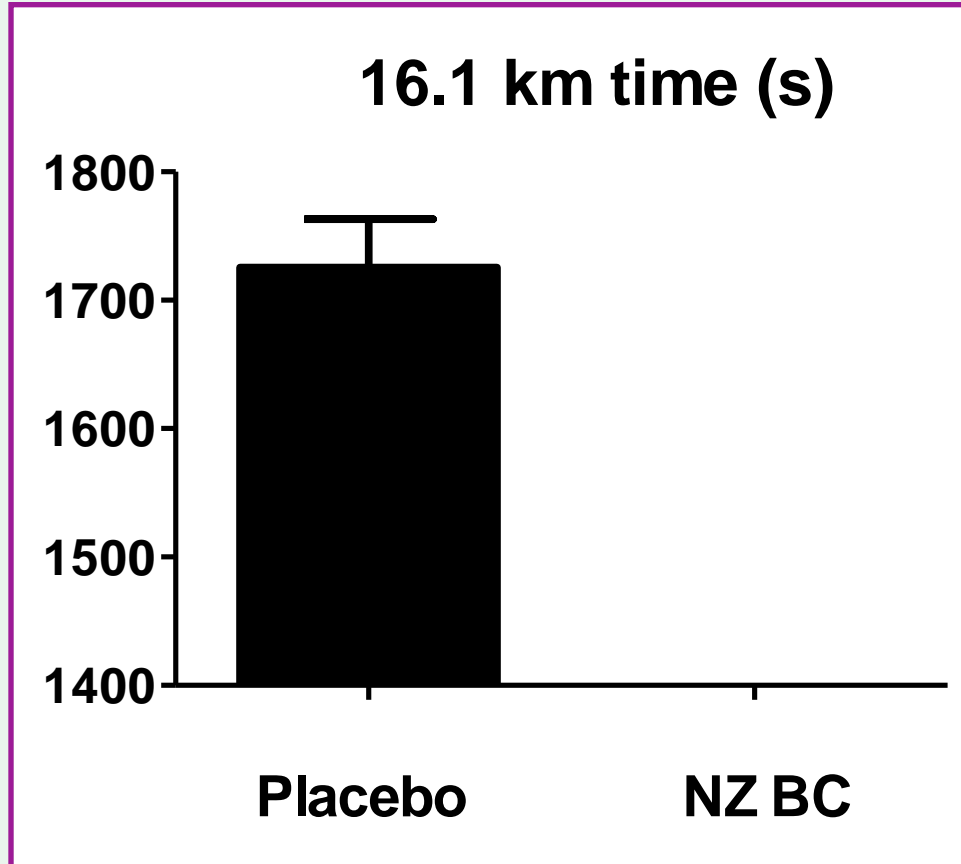


double-blind randomized  
cross-over design





- 16.1 km cycling time-trial performance

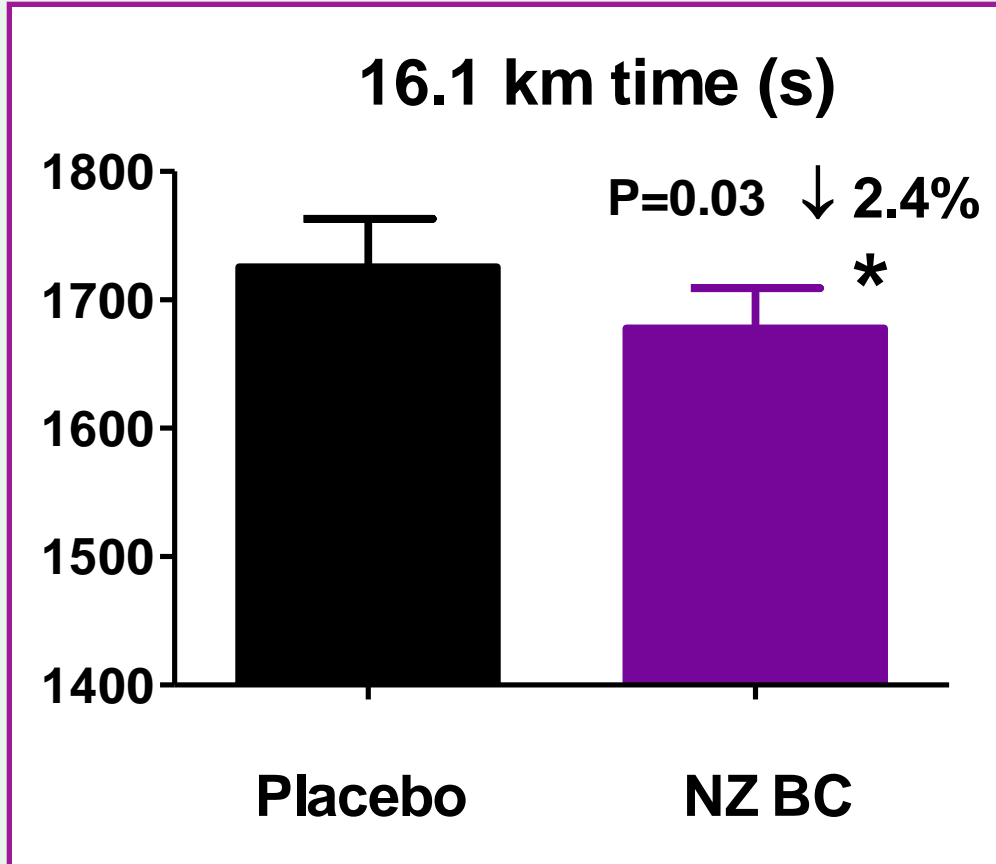


~105 mg anthocyanins/day for 7 days



*n* = 14 (cyclists)

- 16.1 km cycling time-trial performance



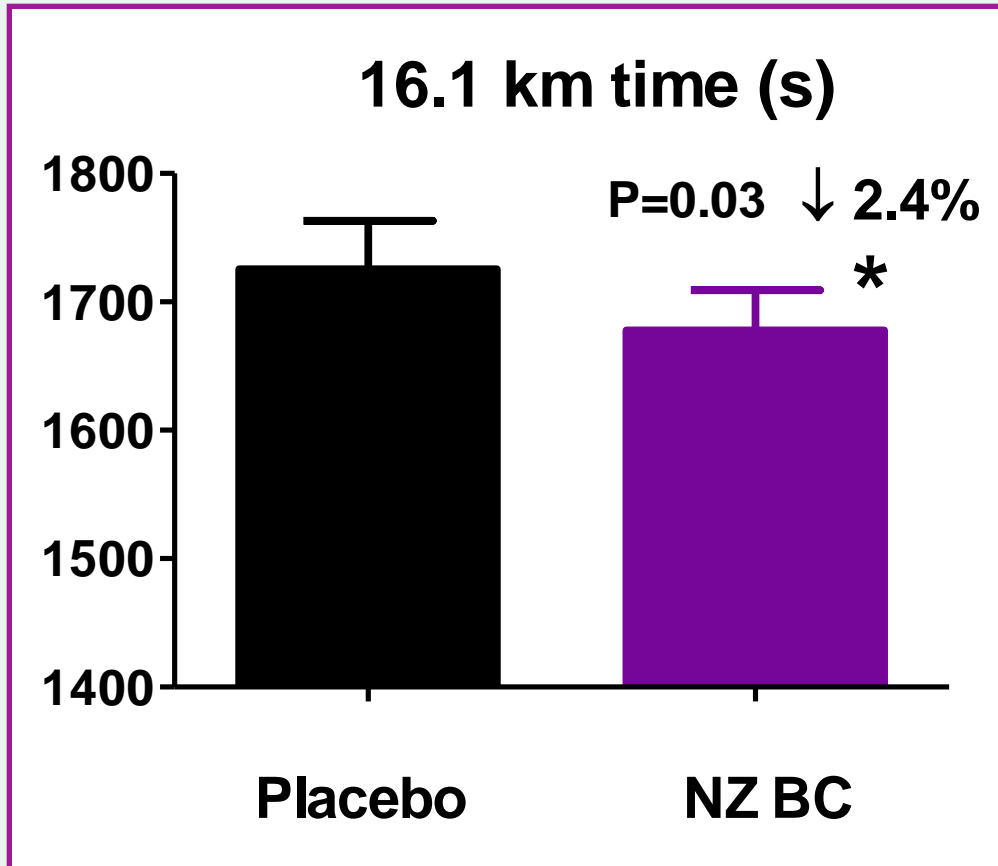
~105 mg anthocyanins/day for 7 days



**n = 14 (cyclists)**  
**11 did go faster**



- 16.1 km cycling time-trial performance



**n = 14 (cyclists)**  
**11 did go faster**

**Acute Dietary Nitrate Supplementation  
Improves Cycling Time Trial Performance**

Lansley et al., *Med Sci Sports Exerc* 43, 1125-1131, 2011

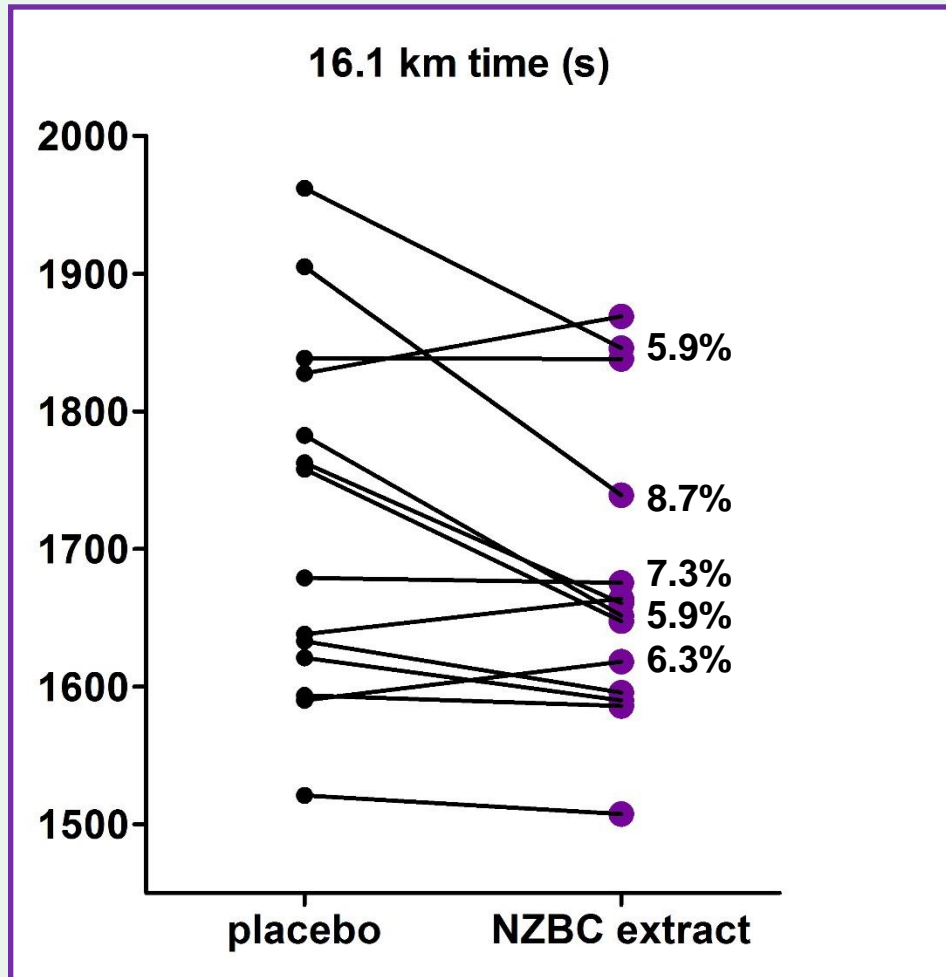
↓ **2.7%**



- 16.1 km cycling time-trial performance



# individual responses



***n* = 14 (cyclists)**  
**11 did go faster**

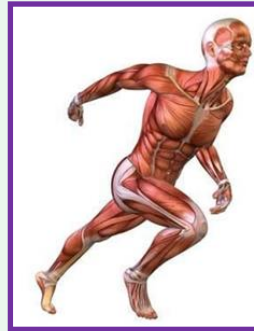
**5 > average**

# Outline



- **Effects of New Zealand blackcurrant on exercise performance**

exercise performance



**high intensity exercise**

- laboratory treadmill test
- field test with maximal running sprints

**Highly anaerobic exercise**

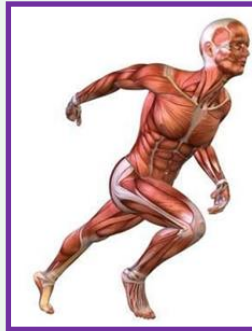


# Outline



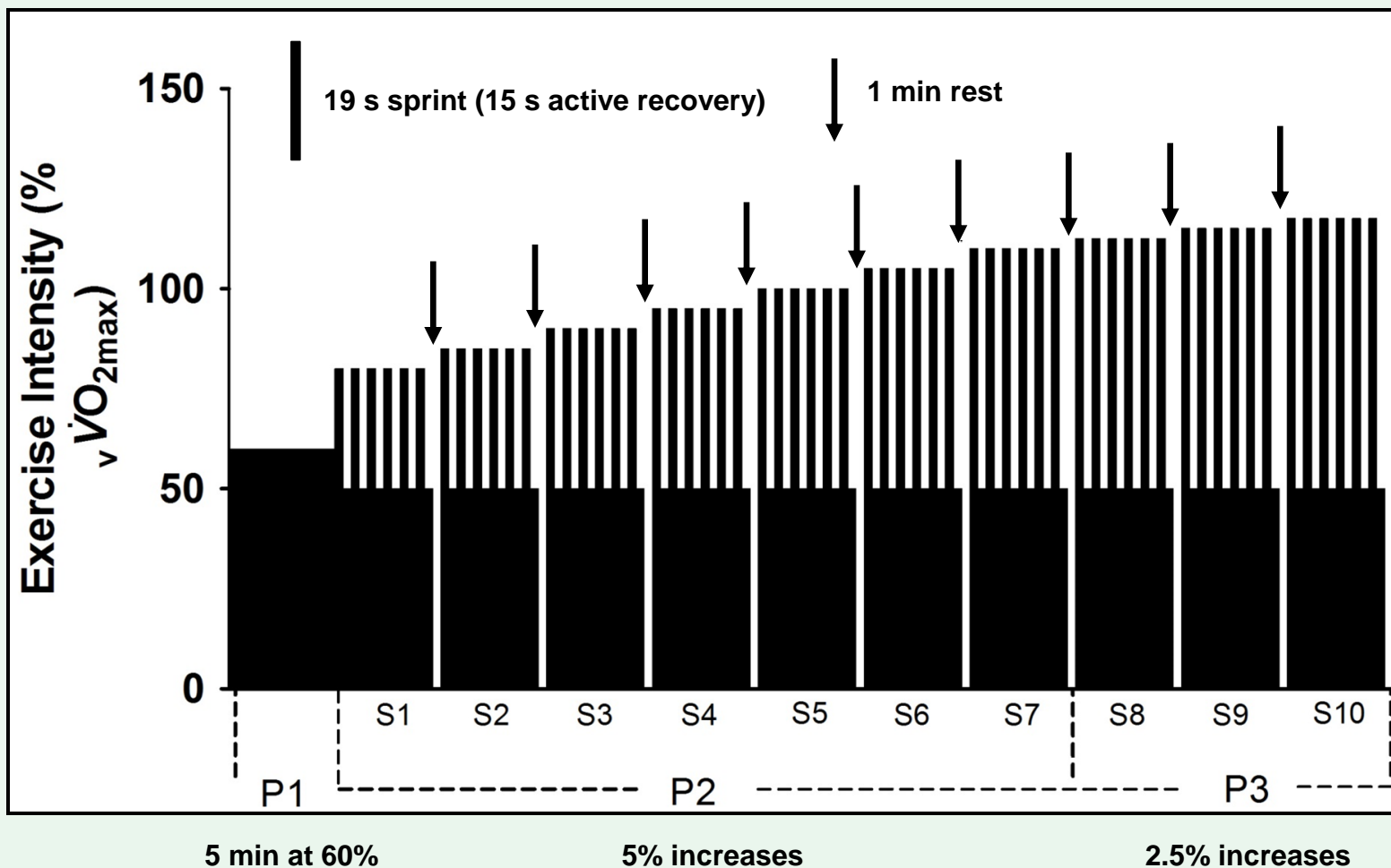
- **Effects of New Zealand blackcurrant on exercise performance**

exercise performance

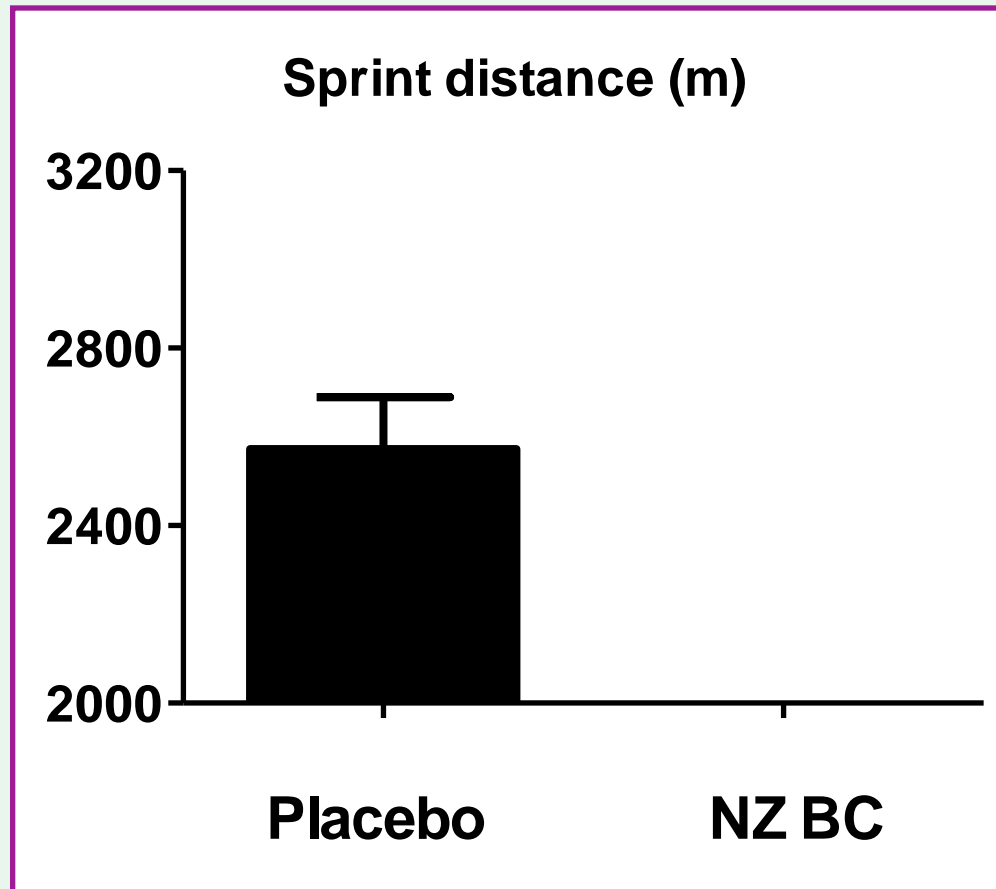


- **laboratory treadmill test**

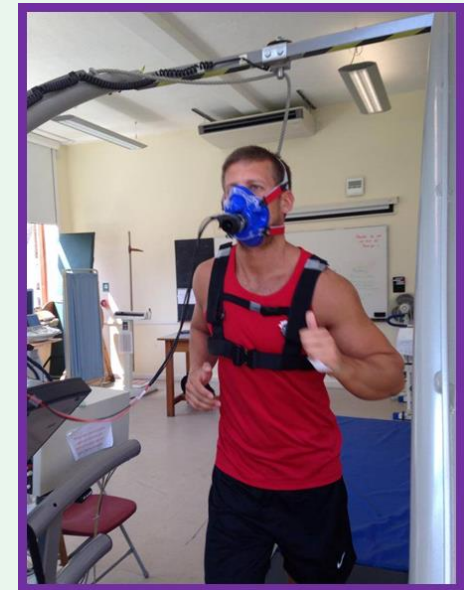
- running – repeated sprints (not maximal)  
a laboratory protocol



- running – repeated sprints (not maximal)  
a laboratory protocol



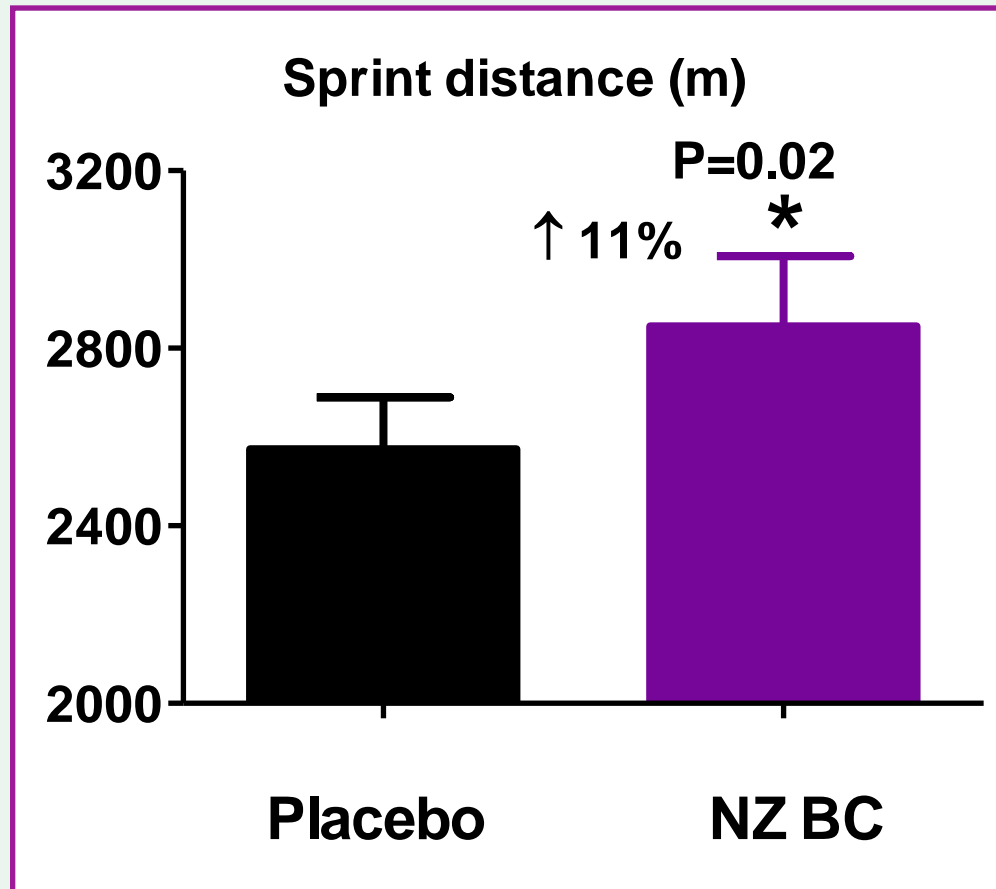
~105 mg anthocyanins/day for 7 days



**n = 13 (active males)**



- running – repeated sprints (not maximal)  
a laboratory protocol



~105 mg anthocyanins/day for 7 days



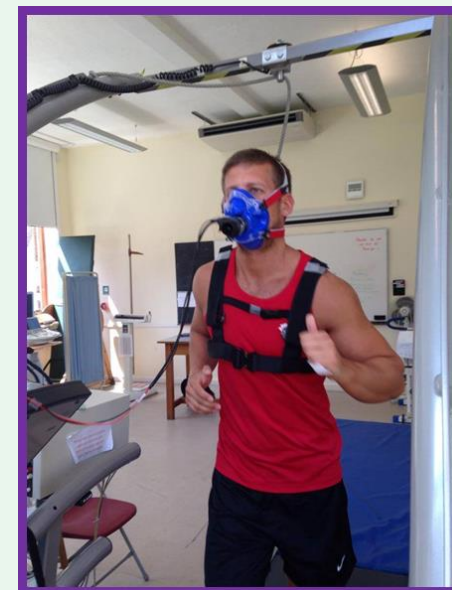
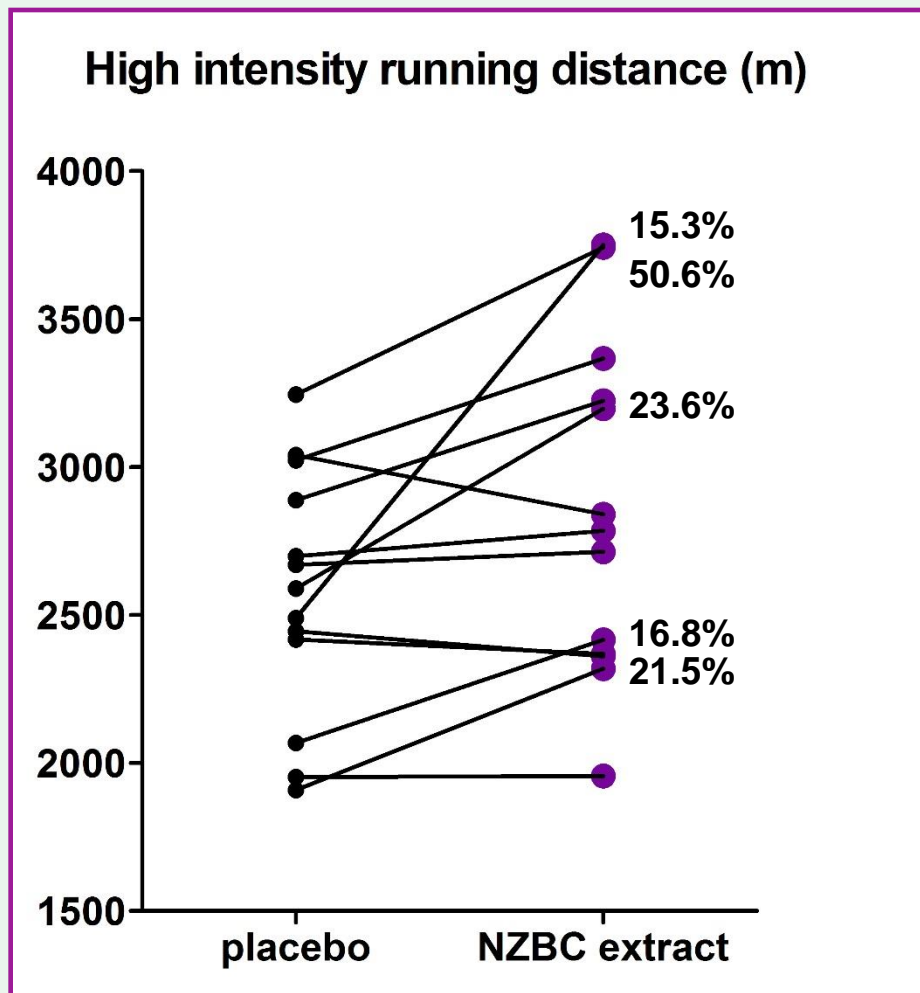
**n = 13 (active males)**  
**9 improved**



- running – repeated sprints (not maximal)  
a laboratory protocol



# individual responses



**$n = 13$  (active males)**

**9 improved**

**5 > average**



- running – repeated maximal sprints

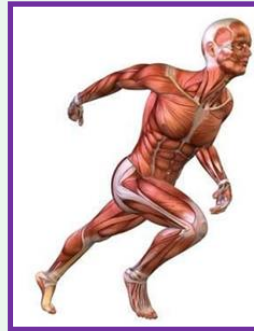


# Outline



- **Effects of New Zealand blackcurrant on exercise performance**

exercise performance



**high intensity exercise**

- **field test with maximal running sprints**

**Highly anaerobic exercise**



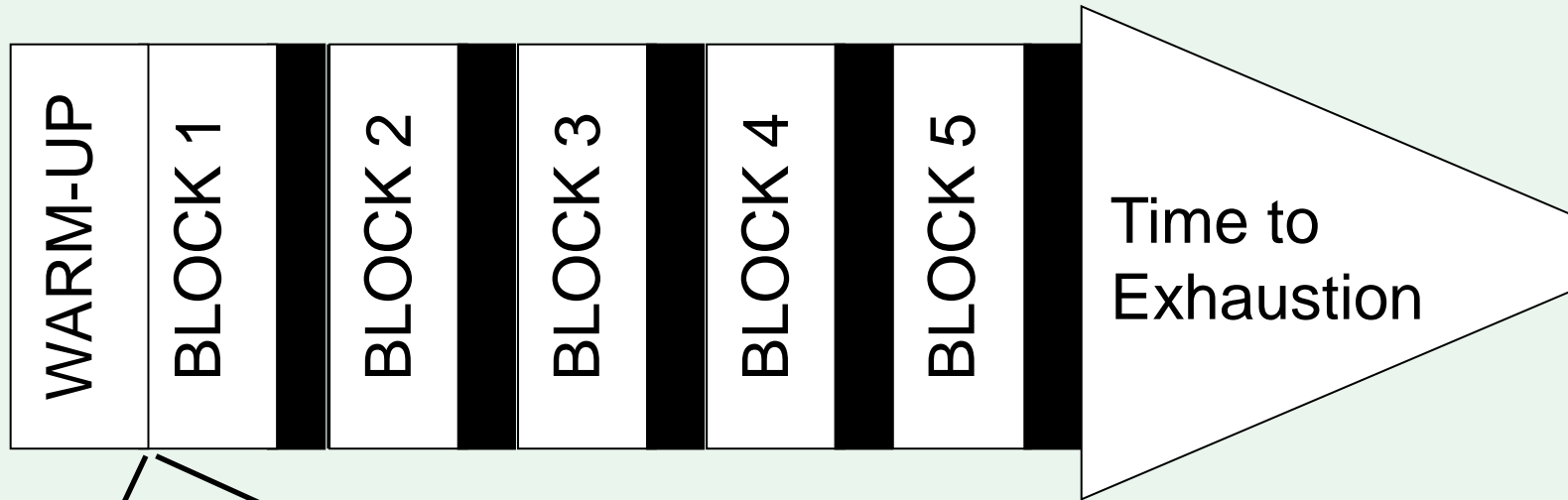
# Loughborough Intermittent Shuttle Test

a field protocol

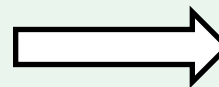
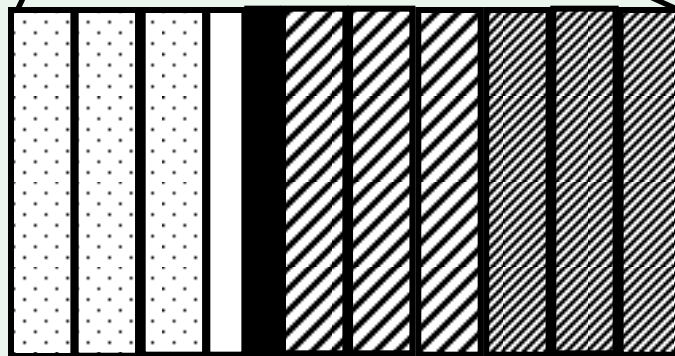


# Loughborough Intermittent Shuttle Test

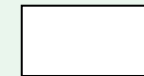
each block is 15 min



9x in each block



Walk 20 m



Sprint 20 m



Recovery 4 s



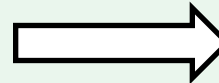
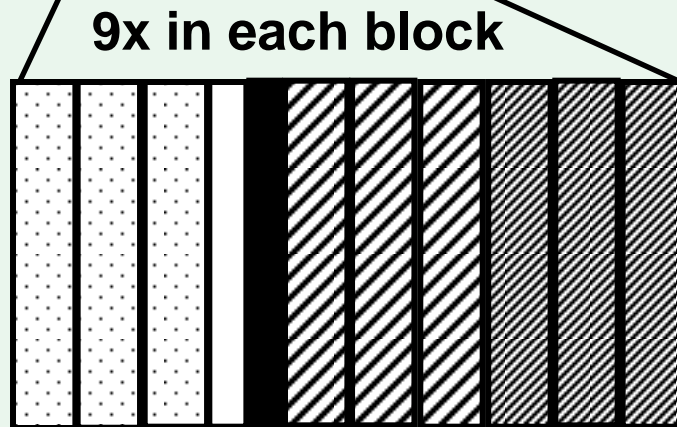
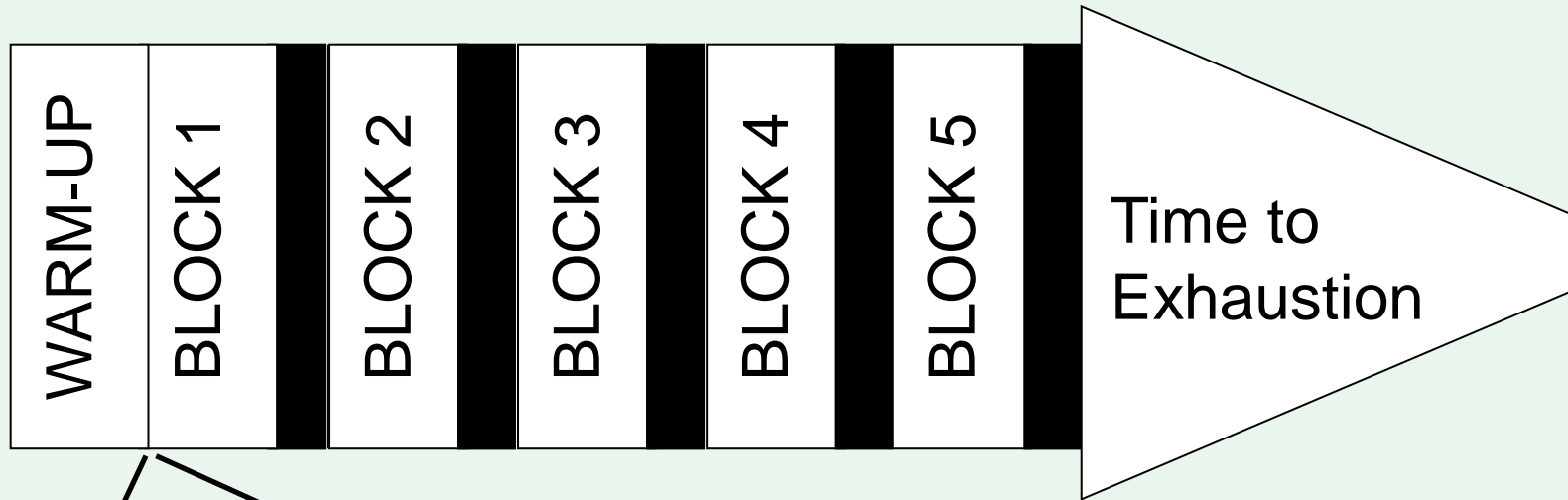
55%  $\dot{V}O_{2max}$

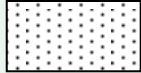






95%  $\dot{V}O_{2max}$

# Loughborough Intermittent Shuttle Test

each block is 15 min



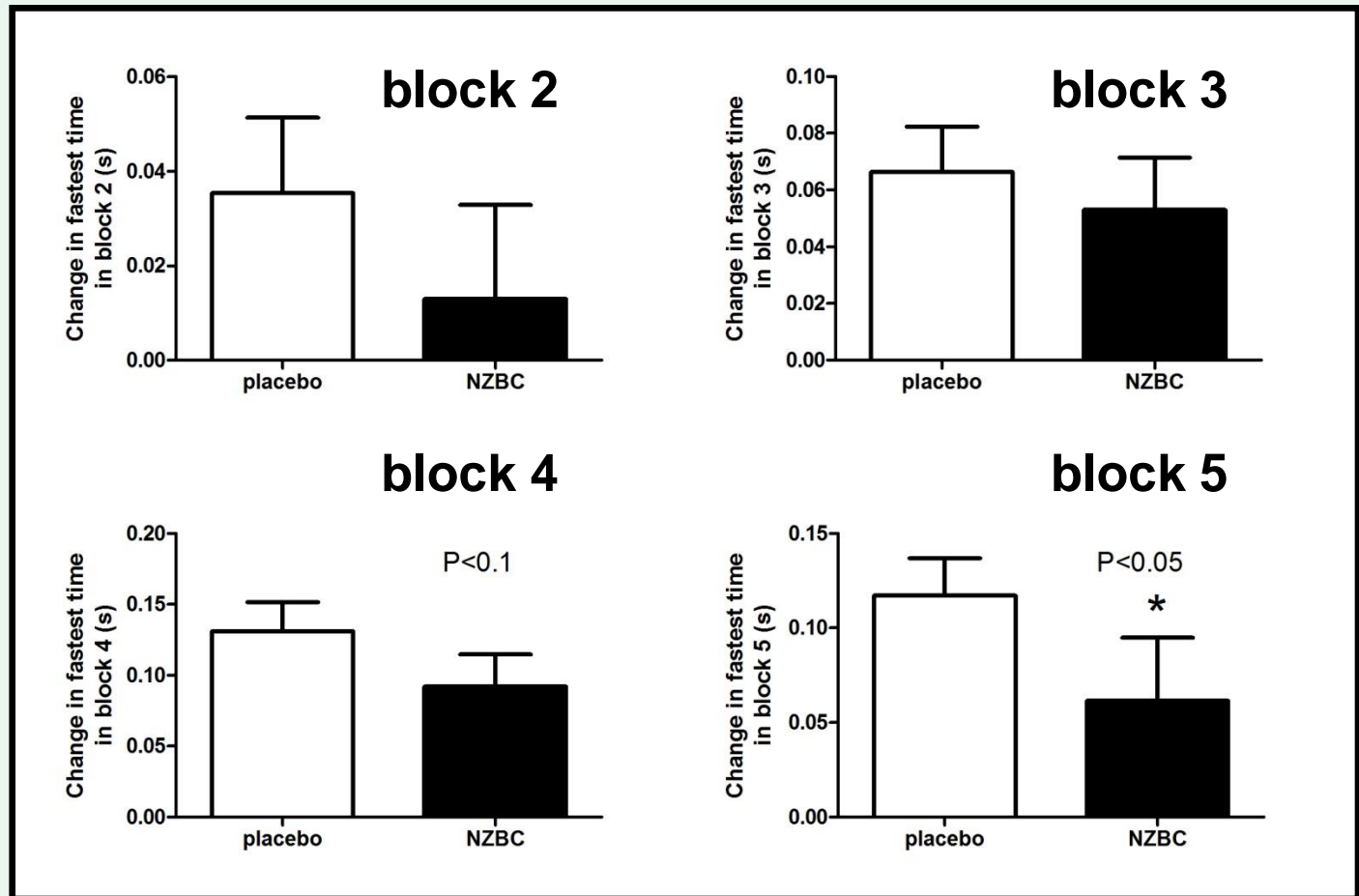
-  Walk 20 m
-  Sprint 20 m
-  Recovery 4 s
-  55%  $\dot{V}O_{2max}$
-  95%  $\dot{V}O_{2max}$

What was the change in the fastest sprint time in block 1?



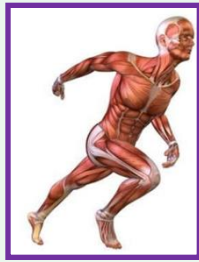
# Unpublished

What was the change in the fastest sprint time in block 1?



**New Zealand blackcurrant reduced slowing of the fastest sprint**





- **Effects of New Zealand blackcurrant intake in exercise studies**

## **APPLICATION**

**Endurance and team sport athletes may consider intake of New Zealand blackcurrant to beneficially enhance training practice, performance and recovery**

**Braakhuis et al. Effects of dietary antioxidants on training and performance in female runners. *Eur J Sport Sci.* 14(2):160-8, 2014.**

**“..blackcurrant may improve performance in the elite.”**

# Outline

- **An exciting take home prediction**



# Take home prediction

Specific anthocyanin-rich products (e.g. blackcurrant) will emerge as *new sports nutrition supplements*



# Outline

## Sports Nutrition



- **Future directions**
  - a challenging and busy road ahead!

# Sports Nutrition



altitude



heat



cold

- **Effectiveness in various exercise modalities and environmental conditions**
- **Optimal dosing strategy**
- **Future directions**
  - a challenging and busy road ahead!



# Acknowledgements

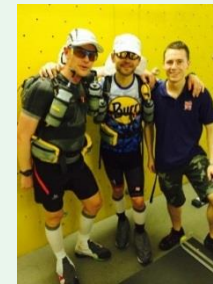
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**Matthew Cook**

**Dr Mandy Gault**



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Luke Cousins  
David Williams



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HealthCurrency Ltd, UK



Blackcurrants New Zealand Inc, NZ



# Thank you for listening



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