

Exciting Advances in Blackcurrant Research for Exercise and Health



Mark Willems

Professor of Exercise Physiology



United Kingdom



9th June, 2018

Angers, France

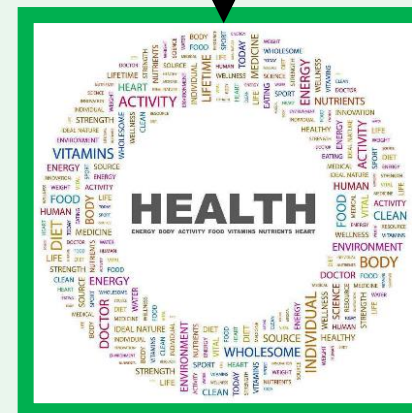
Berry Polyphenols for Exercise and Health



Exercise



Recovery



Polyphenols in some berries



black chokeberry



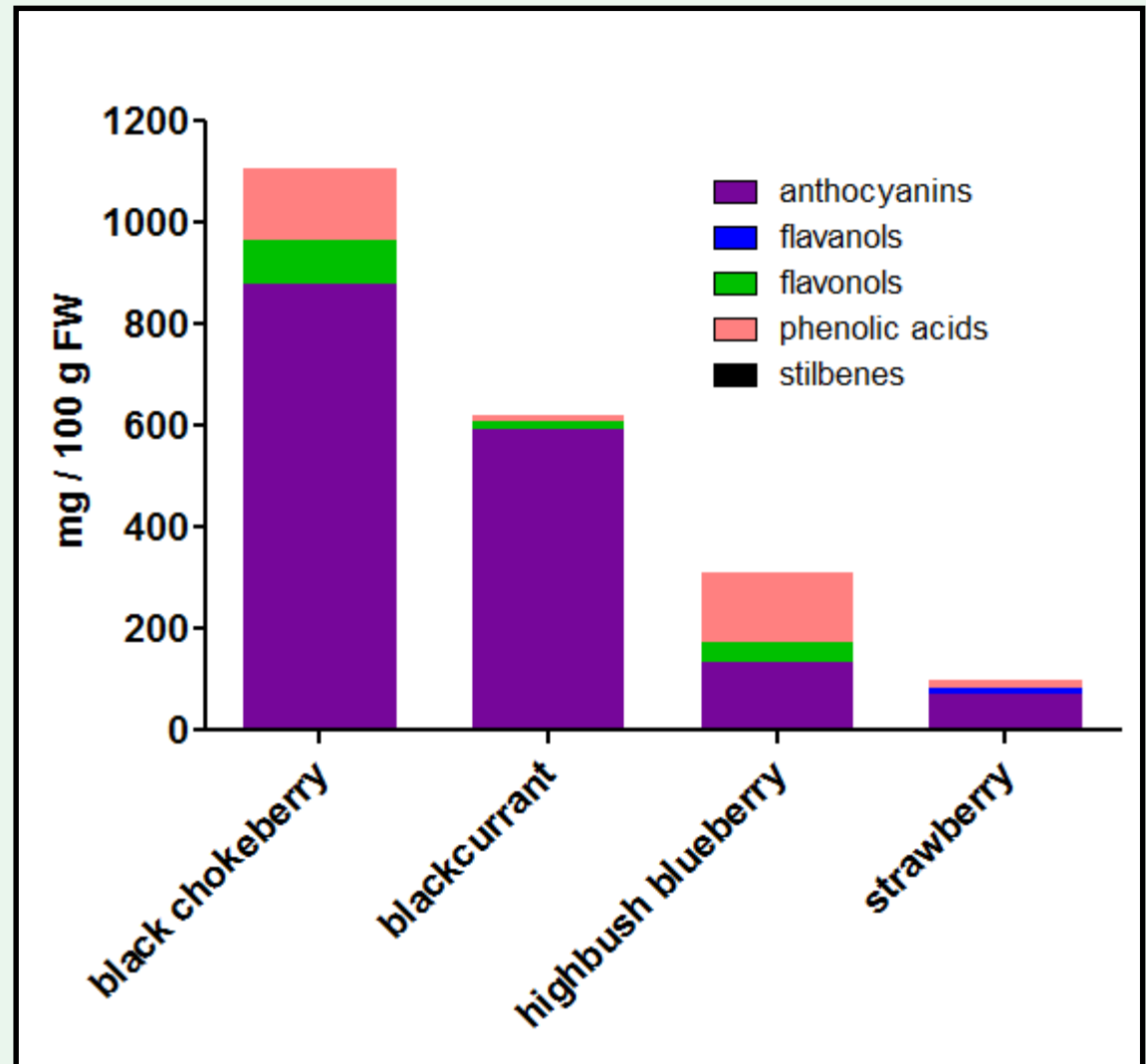
blackcurrant



highbush blueberry



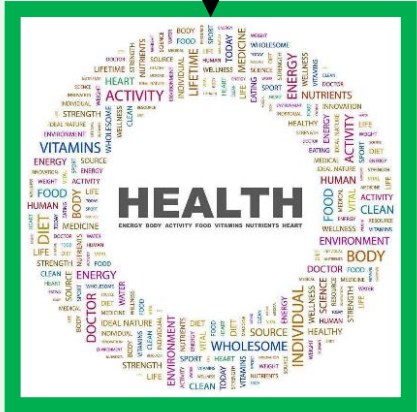
strawberry



Blackcurrant Anthocyanins for Exercise and Health



Exercise



Outline

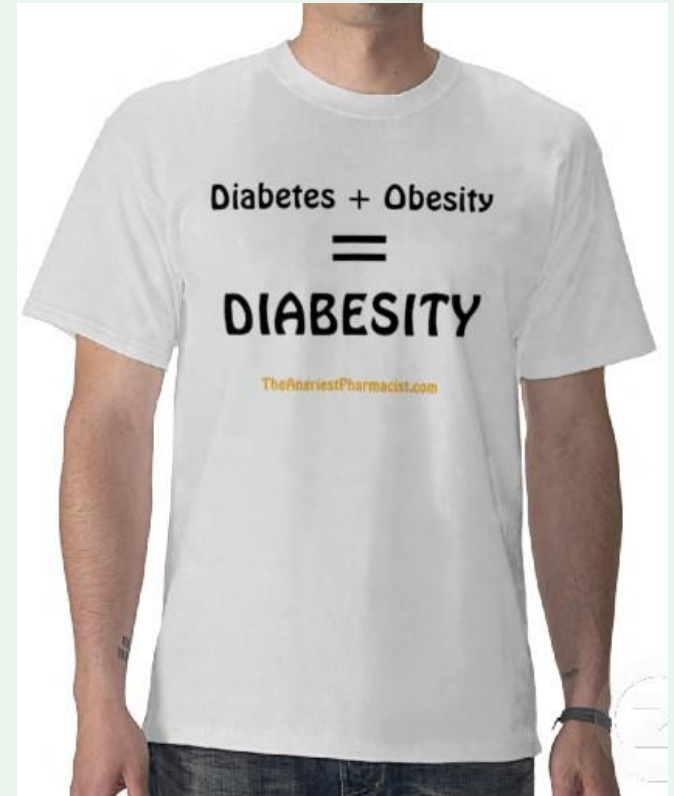


- **Insulin sensitivity**
- **Football**
- **Fat burning**
- **A big blood vessel getting bigger!**
- **Japan 2020 is coming!**



- **Insulin sensitivity**

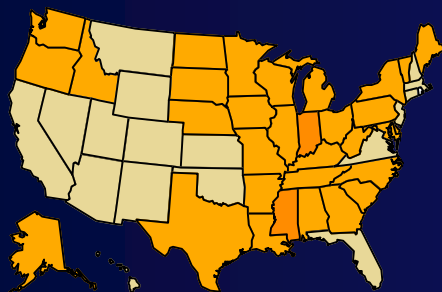
the diabetes epidemic



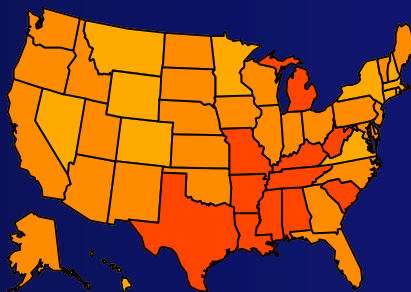
Age-adjusted Prevalence of Obesity and Diagnosed Diabetes Among US Adults

Obesity (BMI ≥ 30 kg/m²)

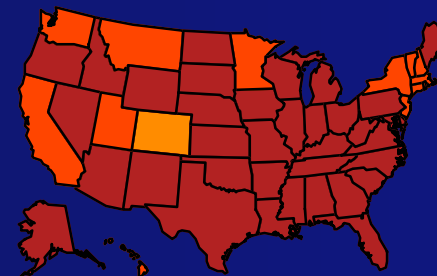
1994



2000



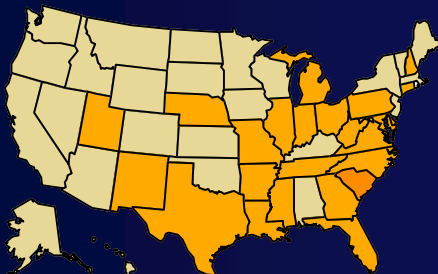
2015



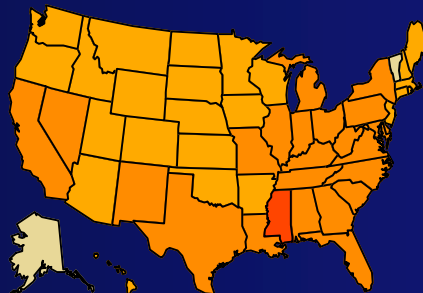
□ No Data □ <14.0% □ 14.0%–17.9% □ 18.0%–21.9% □ 22.0%–25.9% □ ≥26.0%

Diabetes

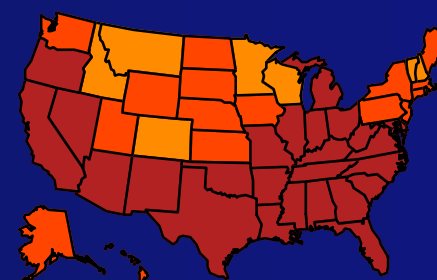
1994



2000



2015

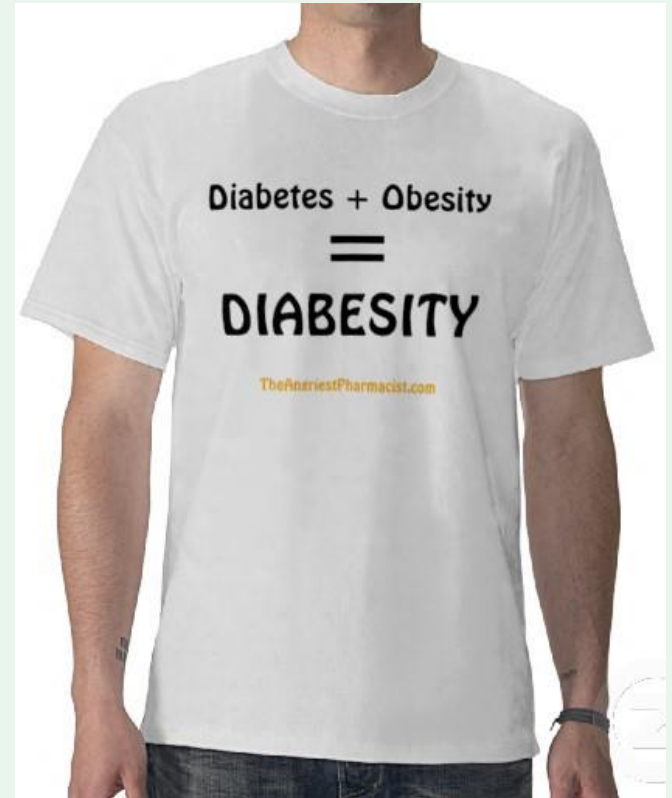


□ No Data □ <4.5% □ 4.5%–5.9% □ 6.0%–7.4% □ 7.5%–8.9% □ ≥9.0%

CDC's Division of Diabetes Translation. United States Surveillance System available at <http://www.cdc.gov/diabetes/data>

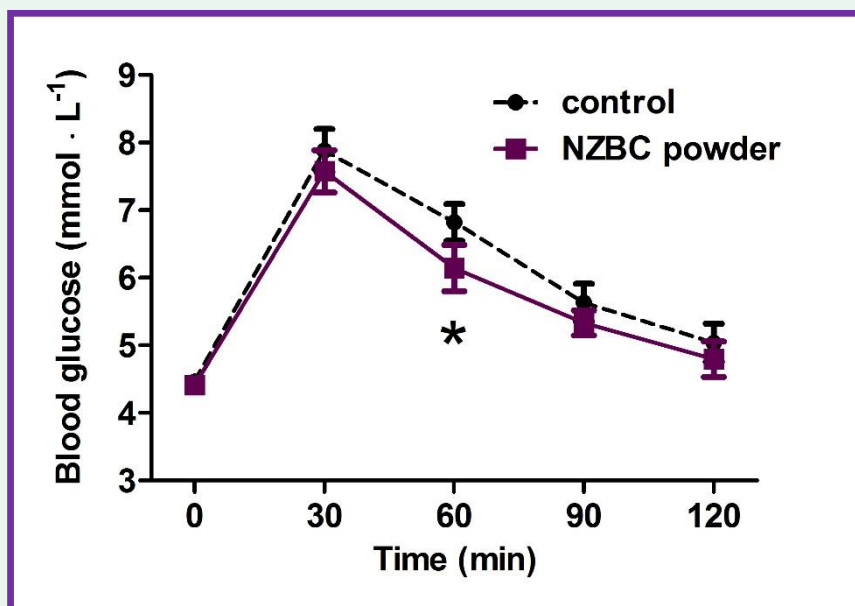


the diabetes epidemic



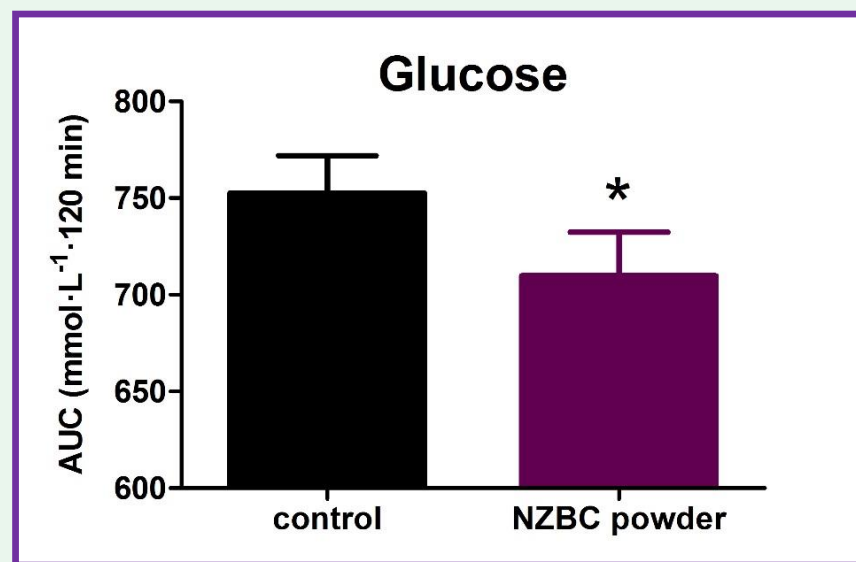
reduced insulin sensitivity

- 17 participants (9 females, 20-53 years)
- 7-days of 6 gram New Zealand blackcurrant powder
(6 gram: 138.6 mg anthocyanins, 49 mg vitamin C and 5.2 g of carbohydrates)
- 2 hr OGTT (75 gram glucose) after overnight fast



↓ 8.1% at 60 min (P<0.05)

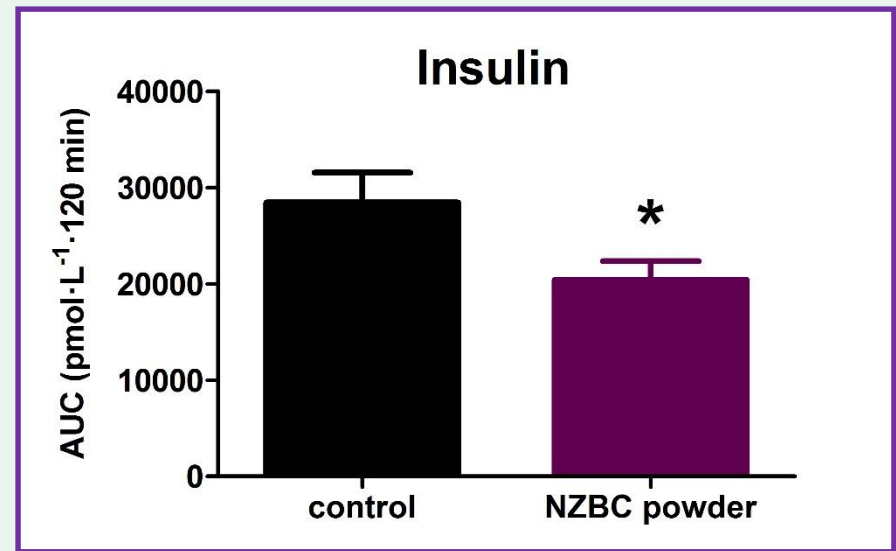
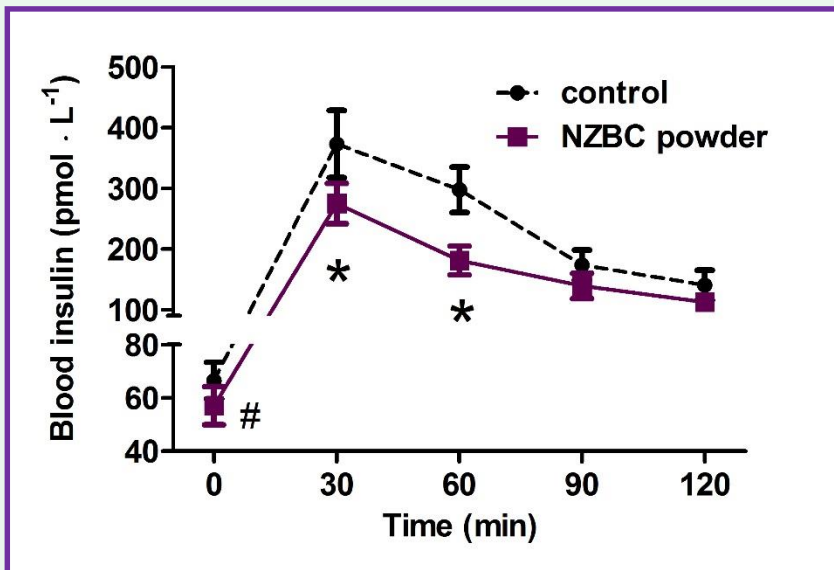
no changes in fasting glucose



area under the curve

↓ 5.7% (P<0.05)

- 17 participants (9 females, 20-53 years)
- 7-days of 6 gram New Zealand blackcurrant powder
(6 gram: 138.6 mg anthocyanins, 49 mg vitamin C and 5.2 g of carbohydrates)
- 2 hr OGTT (75 gram glucose) after overnight fast



↓ 14.3% at 0 min (P=0.091)

↓ 18.4% and ↓ 39.2% at 30 and 60 min (P<0.05)

area under the curve

↓ 31.1% (P<0.05)

• Insulin sensitivity

Functional Foods in Health and Disease 2017; 7(7): 483-493

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[Research Article](#)

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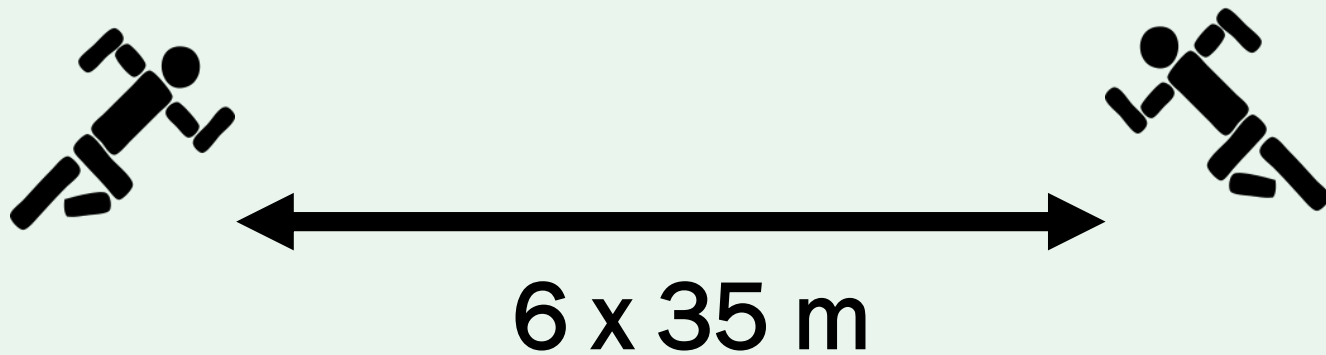
Beneficial effects on fasting insulin and postprandial responses through 7-day intake of New Zealand blackcurrant powder

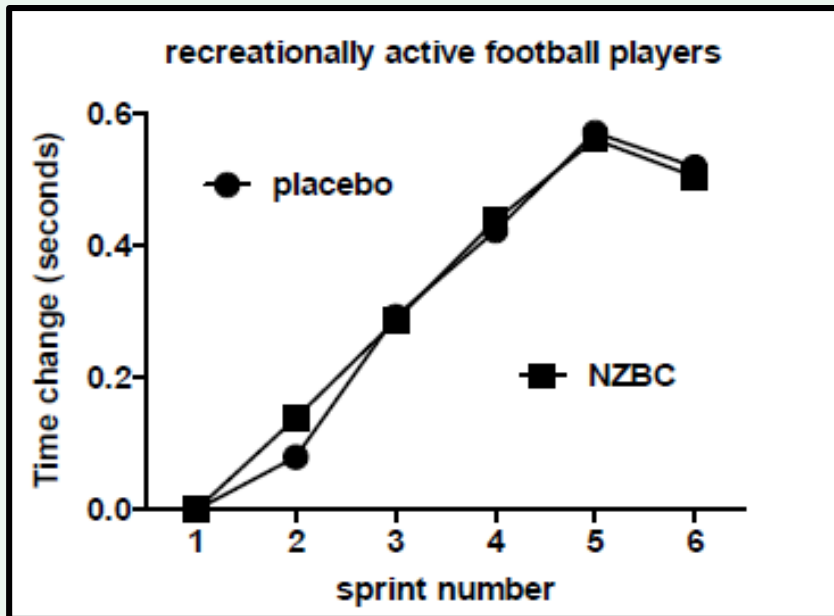
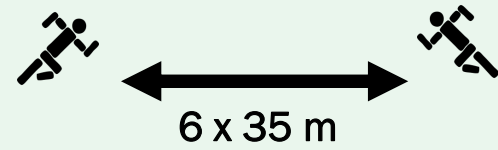
Mark Elisabeth Theodorus Willems¹, Jose Dos Santos Silva¹, Matthew David Cook^{1,2}, and Sam David Blacker¹



- **Football**

running based anaerobic sprint test

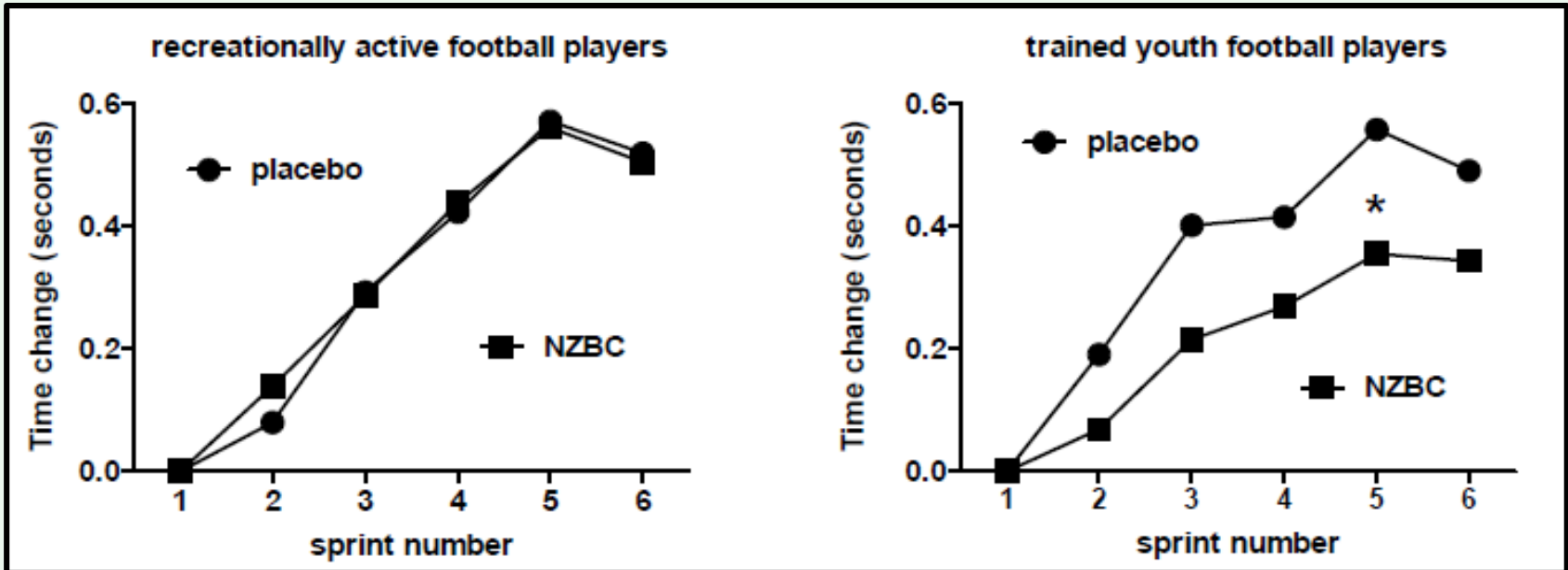
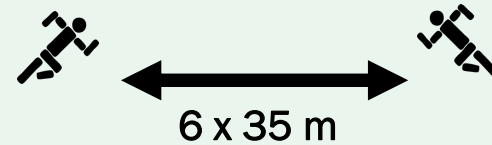




Article

Effect of New Zealand Blackcurrant Extract on Performance during the Running Based Anaerobic Sprint Test in Trained Youth and Recreationally Active Male Football Players

Charlie Godwin ¹, Matthew D. Cook ² and Mark E. T. Willems ^{1,*}



Reduced slowing of sprinting in trained football players

Mail Online



Are blackcurrants the secret behind Tottenham's non-stop playing style under Mauricio Pochettino?

- Research has shown blackcurrants have benefits for professional footballers
- Tottenham were one of the first Premier League sides to start using the fruit
- The London club have been using a blackcurrant supplement, CurraNZ



Research has shown that blackcurrants are useful for Premier League footballers



Tottenham were one of the first Premier League teams to add them to nutrition plans

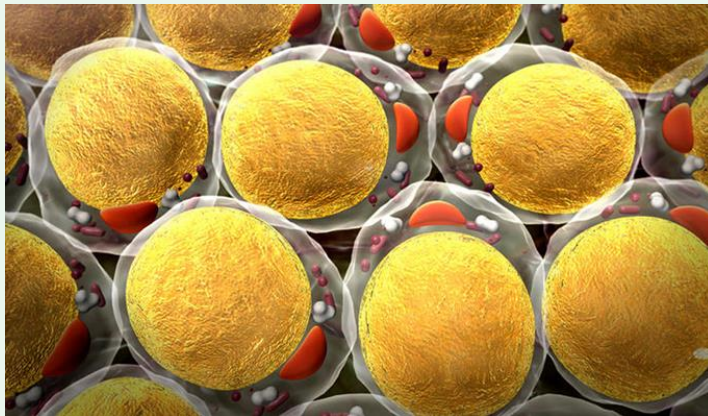


• **Fat burning**

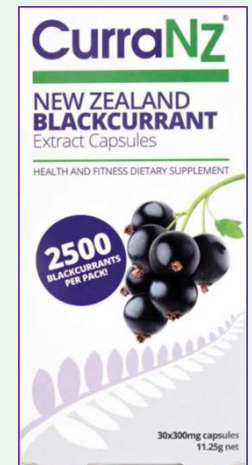
ORIGINAL ARTICLE

Dose effects of New Zealand blackcurrant on substrate oxidation and physiological responses during prolonged cycling

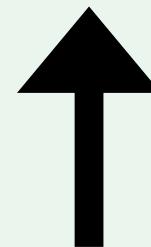
Matthew David Cook^{1,2} · Stephen David Myers¹ · Mandy Lucinda Gault¹ ·
Victoria Charlotte Edwards¹ · Mark Elisabeth Theodorus Willems¹



~ 220 mg anthocyanins



2 hr cycling
fat oxidation
male cyclists

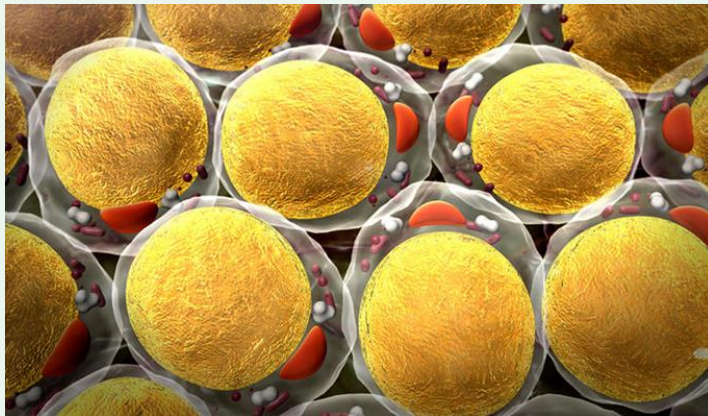


21.5%

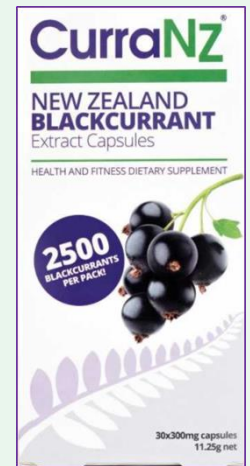


New Zealand blackcurrant extract enhances fat oxidation during prolonged cycling in endurance-trained females

Juliette A. Strauss¹ · Mark E. T. Willems² · Sam O. Shepherd¹



~ 220 mg anthocyanins



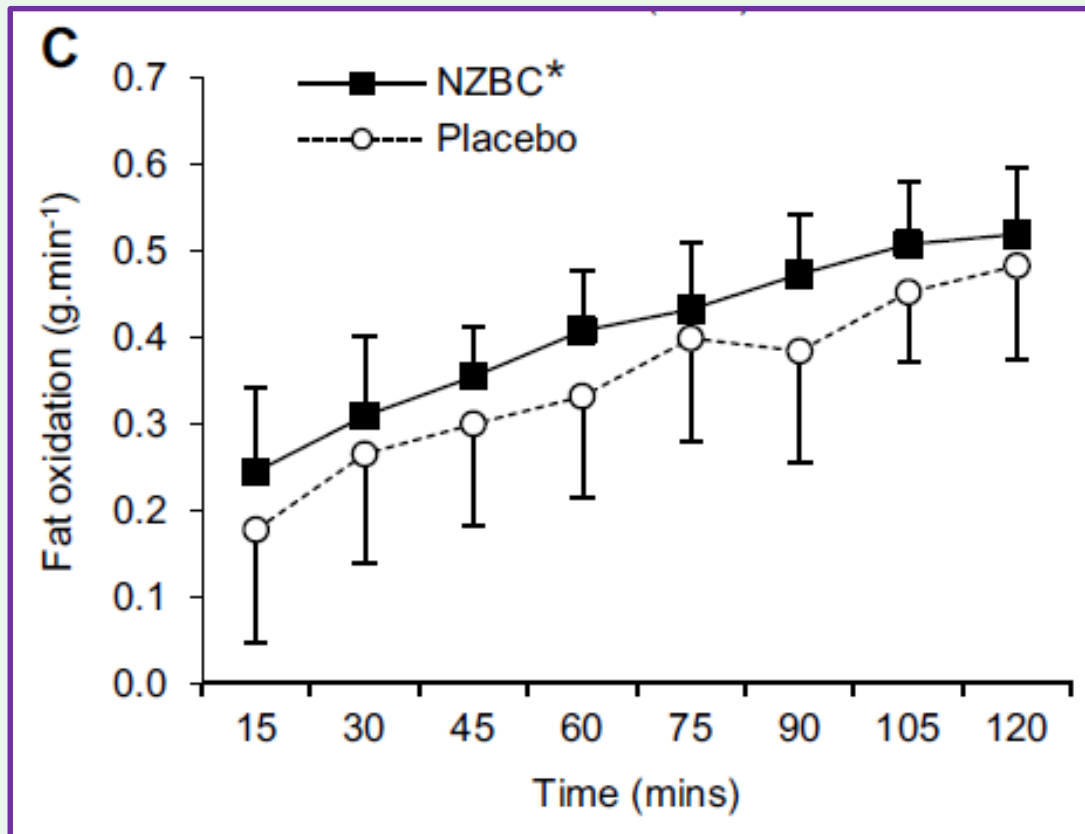
2 hr cycling
fat oxidation
female cyclists

↑ 27%

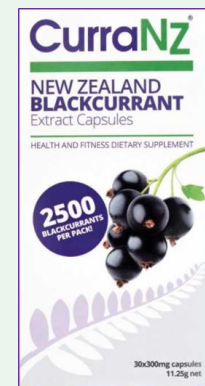


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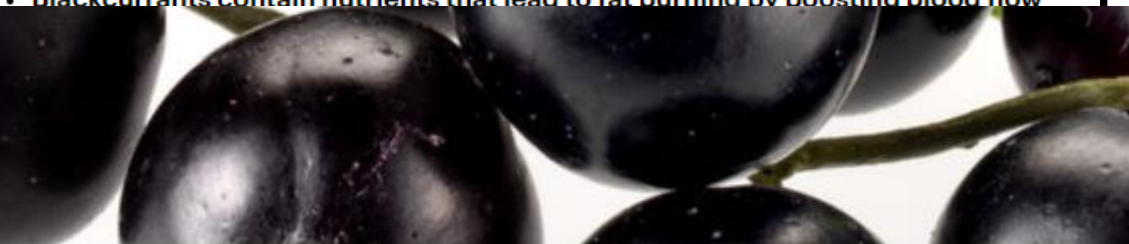


27%



This blackcurrant supplement, backed by science, can burn as much fat as **FOUR WEEKS** of regular exercise (and it costs just £21)

- When taken twice a day for a week, supplement raises fat burning by up to 55%
- The supplement, known as CurraNZ, costs just £21.75 for a pack of 30 tablets
- Blackcurrants contain nutrients that lead to fat burning by boosting blood flow



BERRY GOOD Blackcurrant supplement can burn as much fat as **FOUR WEEKS** of exercise

The blackcurrant extract vitamin is said to increase fat burning by an average of 27 per cent - with one participant reporting a 55 per cent increase

By Jacob Dirnhuber

5th May 2018, 1:02 am | Updated: 5th May 2018, 1:27 pm



9 COMMENTS

SCIENTISTS say they have discovered a two-a-day supplement that burns as much fat as a MONTH of regular exercise.

The blackcurrant extract vitamin reportedly increases fat burning by an average of 27 per cent - with one participant reporting a 55 per cent increase.



Miracle Berry Boosts Burning 55%



TheTightBelly.com

BECAUSE YOU KNOW YOU CAN

Which VEGETABLE causes fat gain?

(the answer may surprise you!)

WEIGHT CONTROL

EXERCISE

HEALTHY EATING

RECIPES

HEALTH



By Dr. Richard Gerhauser, M.D. Posted May 22, 2018



Exotic Berry BURNS 55% More Fat



By Jack Taylor Posted May 16, 2018

Blackcurrant Supplement Claimed To Burn As Much Fat As 4 Weeks Of Regular Exercise

7/8, 2018 1





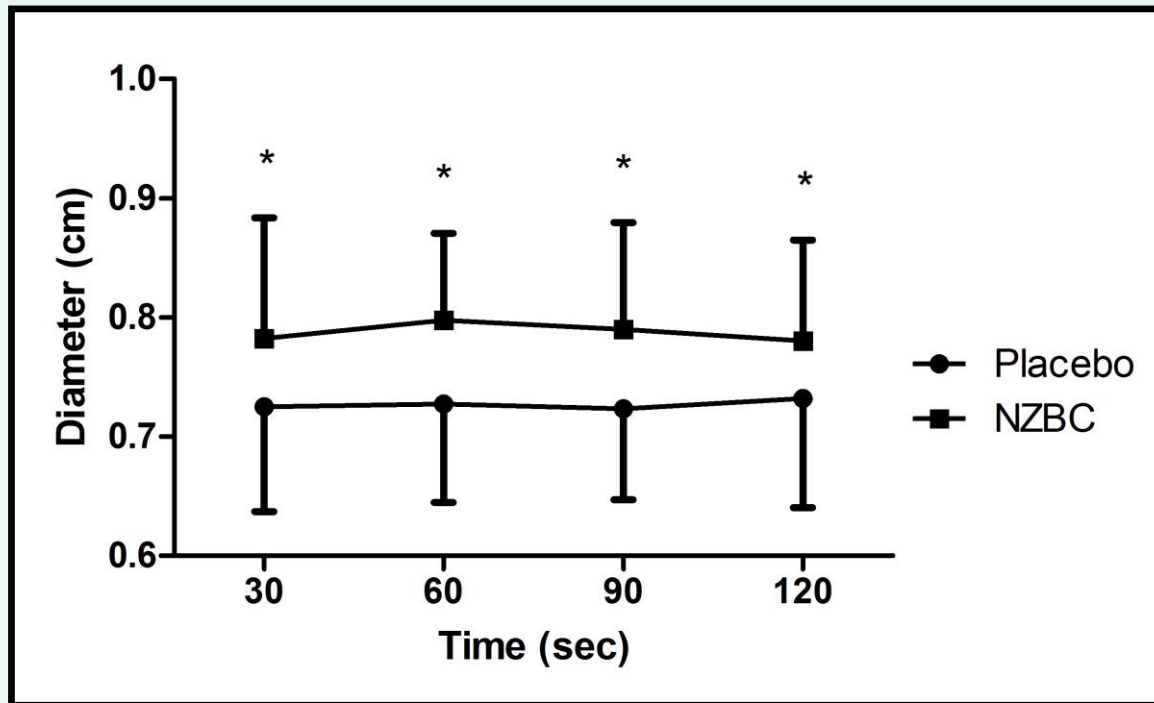
• **A big blood vessel getting bigger!**

Article

Blackcurrant Alters Physiological Responses and Femoral Artery Diameter during Sustained Isometric Contraction

Matthew David Cook ^{1,2}, Stephen David Myers ¹, Mandy Lucinda Gault ¹ and Mark Elisabeth Theodorus Willems ^{1,*}

Femoral artery diameter during 2-min 30%iMVC

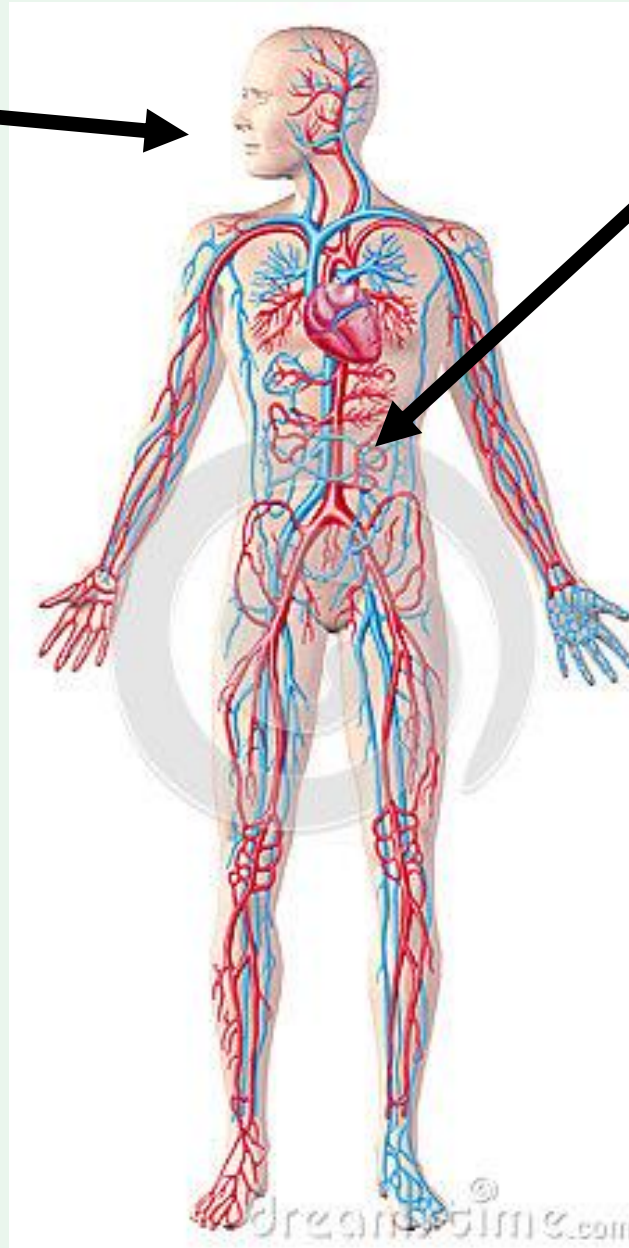


- 7 days intake
- 600 mg/day NZBC extract (~220 mg anthocyanins)

NZ blackcurrant extract increases blood flow during submaximal intensity of isometric contractions



**All very exciting
observations but.....!**



?

degradation
products

Role of the
gut microbiome?



ARE WE THERE YET?



• **Japan 2020 is coming!**

Some of our work will have a Tokyo 2020 focus?



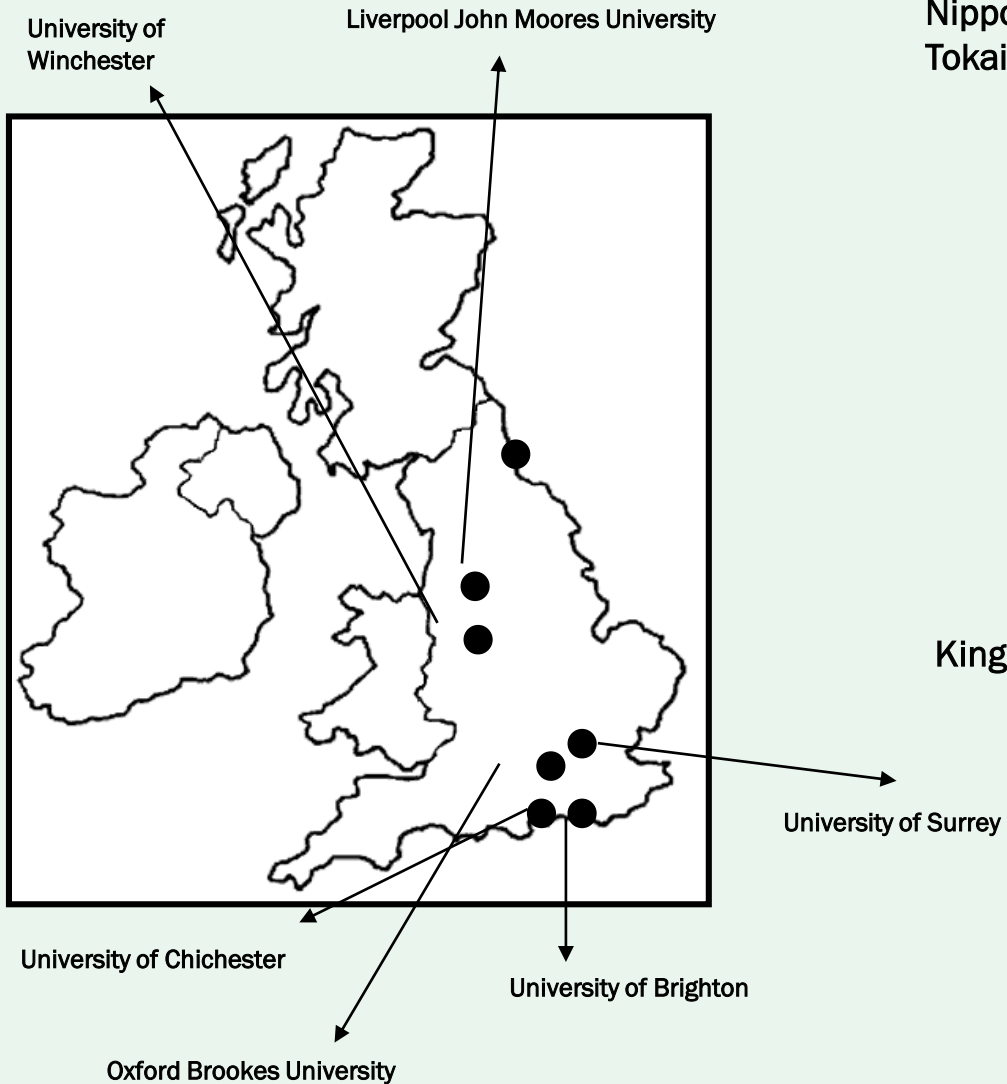
Intestinal damage and exercise in the heat

Exercise performance in the heat

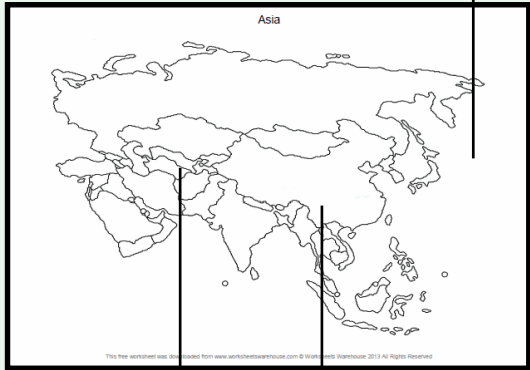


• GOING GLOBAL

Going global



Nippon Sport Science University, Japan
Tokai University, Japan



Mahidol University, Thailand

King Saud University, Saudi Arabia

Research Article

Beneficial effects on fasting insulin
intake of New Zealand

European Journal of Applied Physiology
https://doi.org/10.1007/s00421-018-3858-3

ORIGINAL ARTICLE



Article

Blackcurrant Alters Physiological Responses and Femoral Artery Diameter during Sustained Isometric Contraction

Matthew David Cook ^{1,2}, Stephen David Myers ¹, Mandy Lucinda Gault ¹ and
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enhances fat oxidation
exercise-trained females



Article

Effect of New Zealand Blackcurrant Extract on Performance during the Running Based Anaerobic Sprint Test in Trained Youth and Recreationally Active Male Football Players

Charlie Godwin ¹, Matthew D. Cook ² and Mark E. T. Willems ^{1,*}

Science with
media attention



Good for
blackcurrant
growers and
stakeholders

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Are blackcurrants the secret behind Tottenham's non-stop playing style under Mauricio Pochettino?

- Research has shown blackcurrants have benefits for professional footballers
- Tottenham were one of the first Premier League sides to start using the fruit
- The London club have been using a blackcurrant supplement, CurraNZ

A competition of berries?



Acknowledgements





Thank you for listening

**KEEP CALM
and
LOVE
BLACKCURRANTS**

**Mark Willems
m.willems@chi.ac.uk**