



UNIVERSITY OF  
**ABERDEEN**

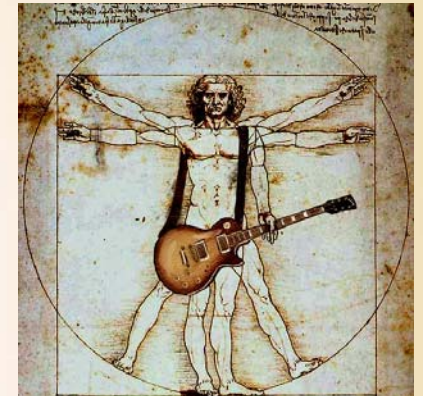
The Rowett Institute

# Health benefits of berries

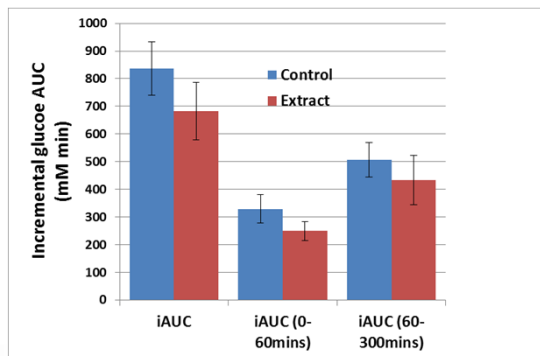
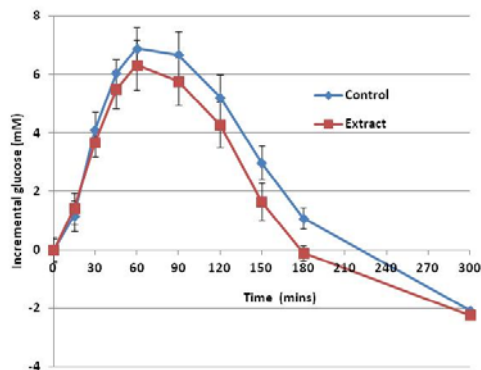
Andreas Kolb, Nigel Hoggard, Vanessa Rungapamestry

# health benefits of berry bioactives

- potential health benefits of berry bioactives
  - improved glucose tolerance – anti diabetic activity
    - good evidence in human trials and animal experiments
  - improved vascular health
    - good evidence in human trials and animal experiments
  - improved neuronal health and cognition
    - some evidence in human trials, animal experiments and cell culture studies
  - body weight maintenance
    - good evidence in animal experiments



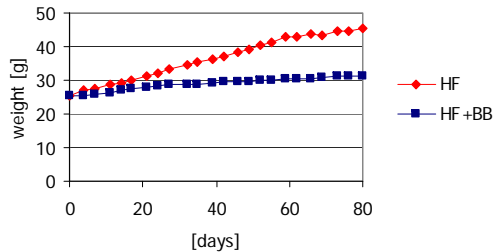
# health benefits of berry bioactives



- obese/overweight male subjects with type 2 diabetes controlling their diabetes by diet and lifestyle (n=8).
- single capsule of bilberry extract (0.47 grams; standardised to 36% anthocyanins = 50g of fresh fruit)
- placebo capsule matched for sugar
- glucose tolerance test (75g; polycal liquid) with a two week wash out period in double blinded cross over study
- effect size similar to metformin

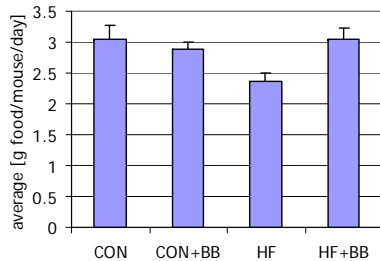
# health benefits of berry bioactives

weight development



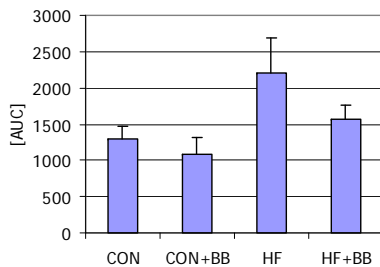
- supplementation of a cafeteria diet with blueberry extracts (total anthocyanin content of diet 2%) prevents all effects of the high fat diet

food intake - group housed



- supplementation normalises
  - weight development
  - lipid metabolism
  - diabetes

glucose tolerance



- potential mechanisms
  - modulation of energy uptake
  - modulation of energy expenditure

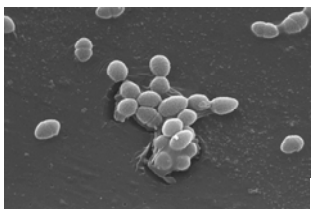
# health benefits of berry bioactives – mechanisms



*inflammation*

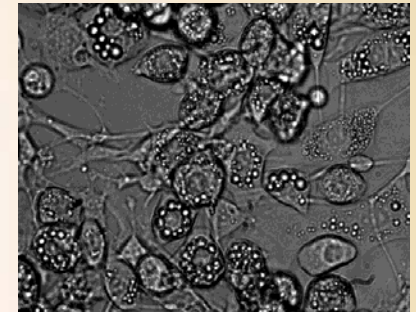


*oxidative stress*

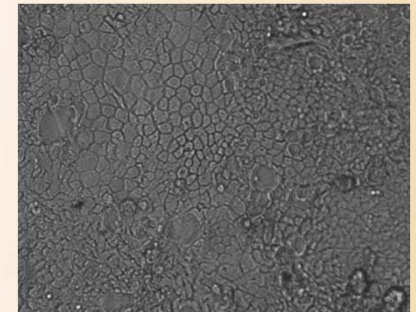


*modulation of bacterial growth*

- potential effects of berry bioactives
  - reduced inflammation
  - reduced oxidative stress
  - improved blood lipid profiles
  - modulation of gut bacteria
- potential bioactives
  - vitamins
  - complex phytochemicals like anthocyanins
  - fibre and complex sugars



*differentiated adipose cells*



*differentiated gut cells*



# identification of health-promoting bioactives

- cell studies
- animal studies
- human studies
  - acute
  - chronic
- berries can be provided as
  - fresh fruit
  - smoothies
  - complex matrix
  - extracts
  - capsules



# acknowledgements

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