The Power of Polyphenols

How Anthocyanins can be used as a Functional Food for Cognitive Health, Cardiovascular Health and more….

HASKAPA

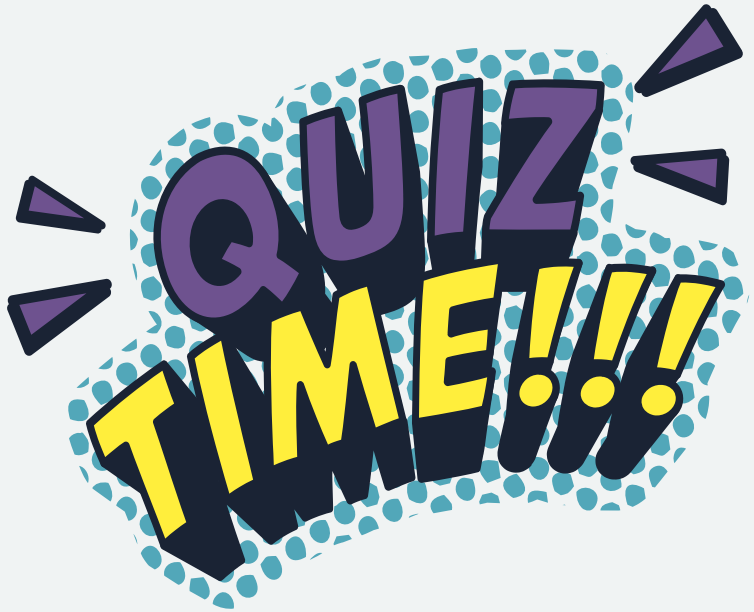
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Julie Weston
Lead Nutritionist at Haskapa

- Registered Nutritional Therapist DipION mBANT CNHC
- Ex Head of Nutrition for a workplace wellbeing company
- Work with 1-2-1 clients supporting various issues
- Love delicious, simple, effective ways to support family and clients with functional foods



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1. How many different types of polyphenols are there (that we know about)?

a). Over 2,000 types

b). Over 4,000 types

c). Over 8,000 types

2. Which food has the highest polyphenol content (mg per 100g) ?

a). Black elderberry

b). Clove

c). Cocoa powder

3. Which is the most well studied polyphenol?

a). Resveratrol

b). Anthocyanin

c). EGCG

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Agenda



- The haskap berry
- Anthocyanins
- Research & benefits
- Products & uses
- New research

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What is a haskap berry? *Lonicera caerulea*



- Edible blue honeysuckle
- Long lived shrub
- Elongated blueberry
- Perfect balance of sweet & tart
- High levels of antioxidants & vitamin C
- Versatile in many different foods

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Haskap origins

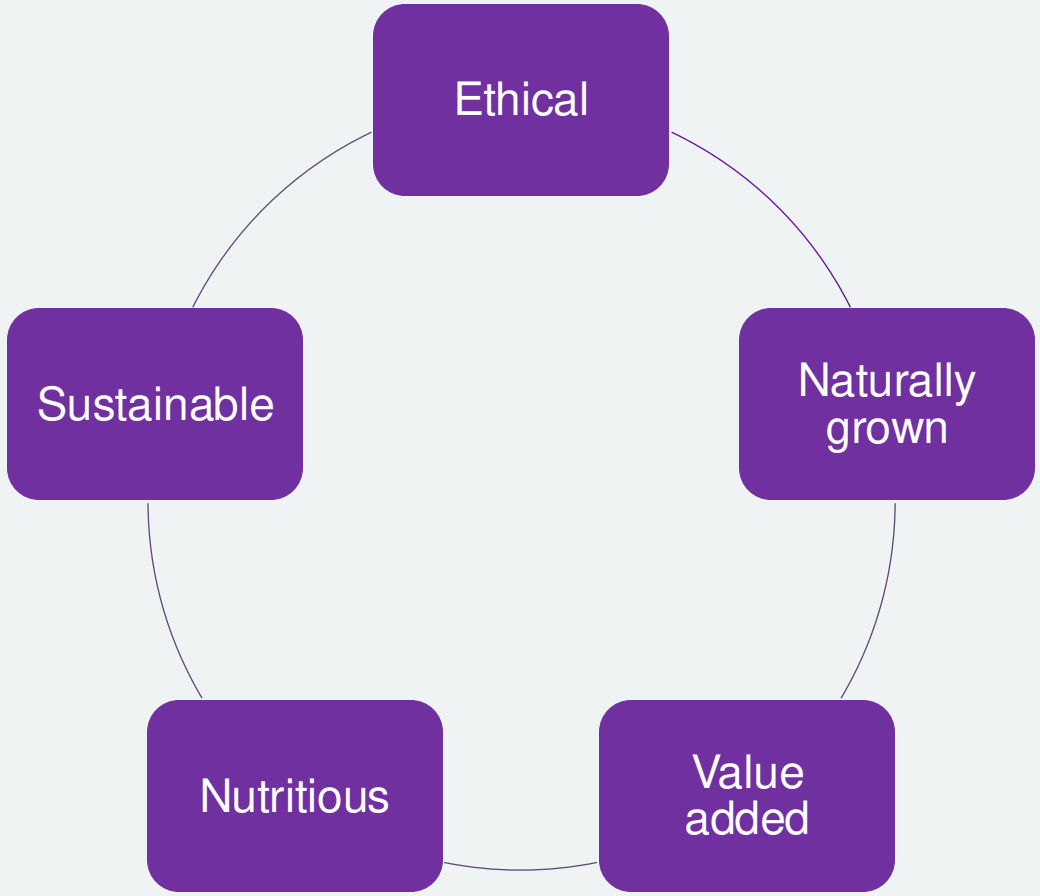




'Fruit of long life and good eyesight'

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Our principles





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Berry procurement

- Our own farm
- Select Canadian farms
- Organic Polish farm
- Strict berry purchase specification and testing



Lone Tree Farm
Eco-friendly natural farming

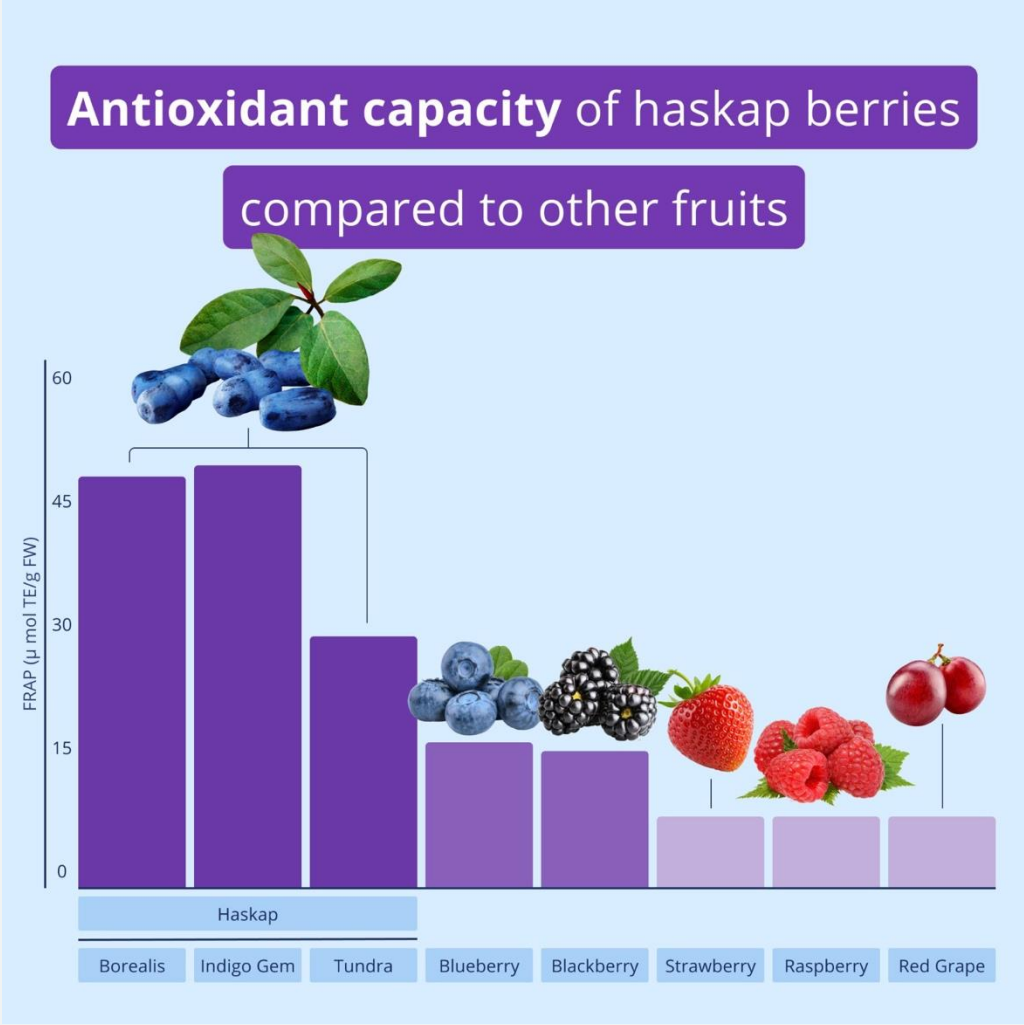
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Why are haskap berries special?



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Antioxidants in haskap berries



Anthocyanin research



Anthocyanins associated with:

- Anti-oxidant
- Anti-inflammatory
- Cardio-protective
- Neuro-protective
- Anti-diabetic properties

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Anthocyanin Epidemiological Studies

Cardioprotective

- **Hypertension**
  - 12% reduction in age 60+ (18mg anthocyanins)
- **Myocardial infarction**
  - 32% reduction in risk of heart attached (18mg anthocyanins)
- **Improved cardiovascular risk factors**
  - Improved plasma triglyceride levels
  - Improved ratio of plasma triglycerides: HDL cholesterol
  - Reduced body mass index

Neuroprotection

- **Cognitive decline**
  - Slower rates of cognitive decline with higher intakes of anthocyanins
  - Higher anthocyanin intake delay in cognitive ageing by 2.5 years
- **Alzheimer's Disease and Related Dementias (ADRD)**
  - Low intake of anthocyanins (no berries/month) associated with **4x increased risk** ADRD, compared to highest anthocyanin intake (7.5 cups of berries/ month, **16.4mg anthocyanins/day**)

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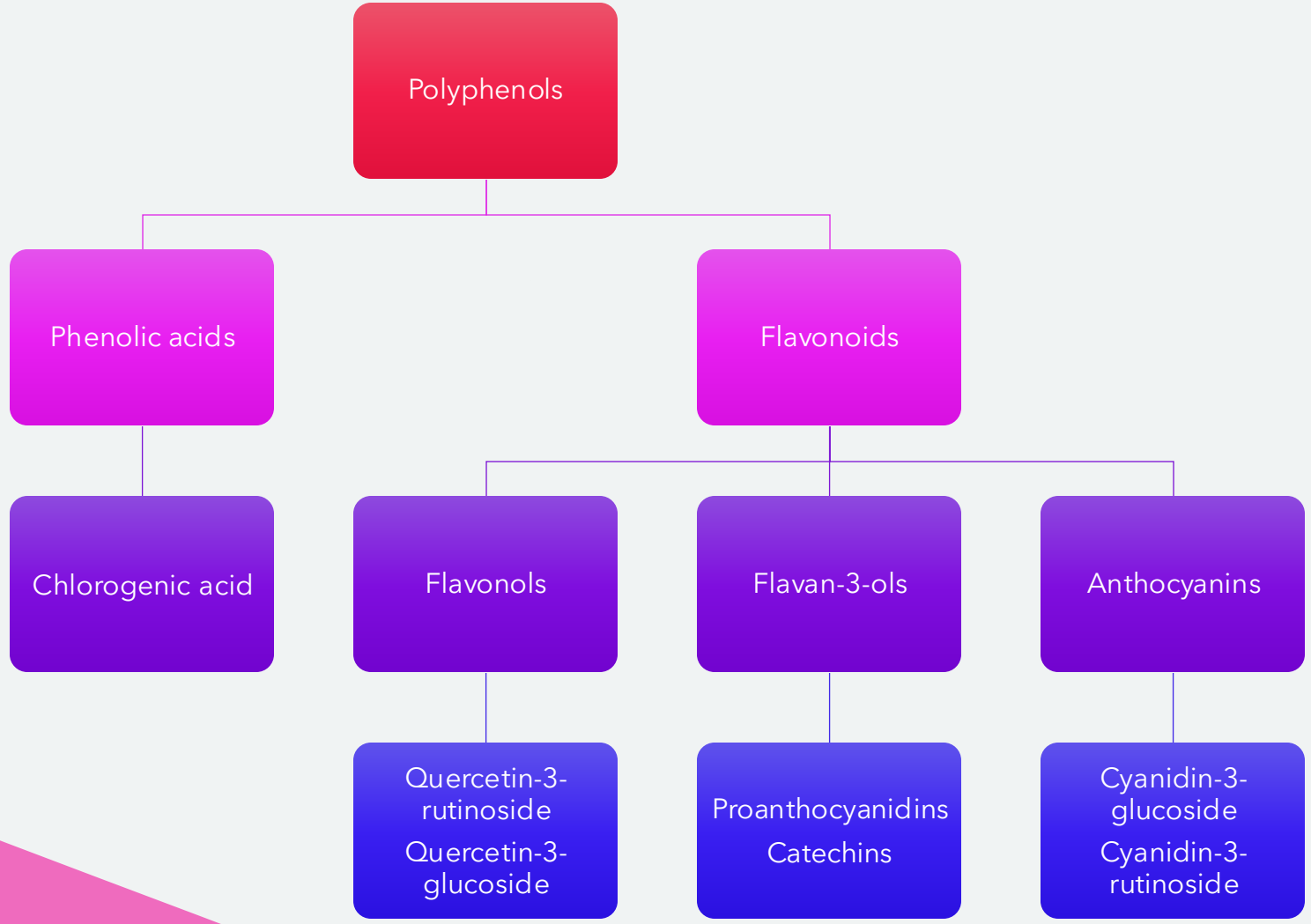
Inflammation

- Cross sectional study with 2,375 participants
- 12 inflammatory biomarkers- inflammation score
- **Anthocyanin intake 32 mg/day** associated with 73% lower inflammation score
- **Anti-inflammatory effect of anthocyanins may contribute to the reduction of risk in several age-related chronic conditions**



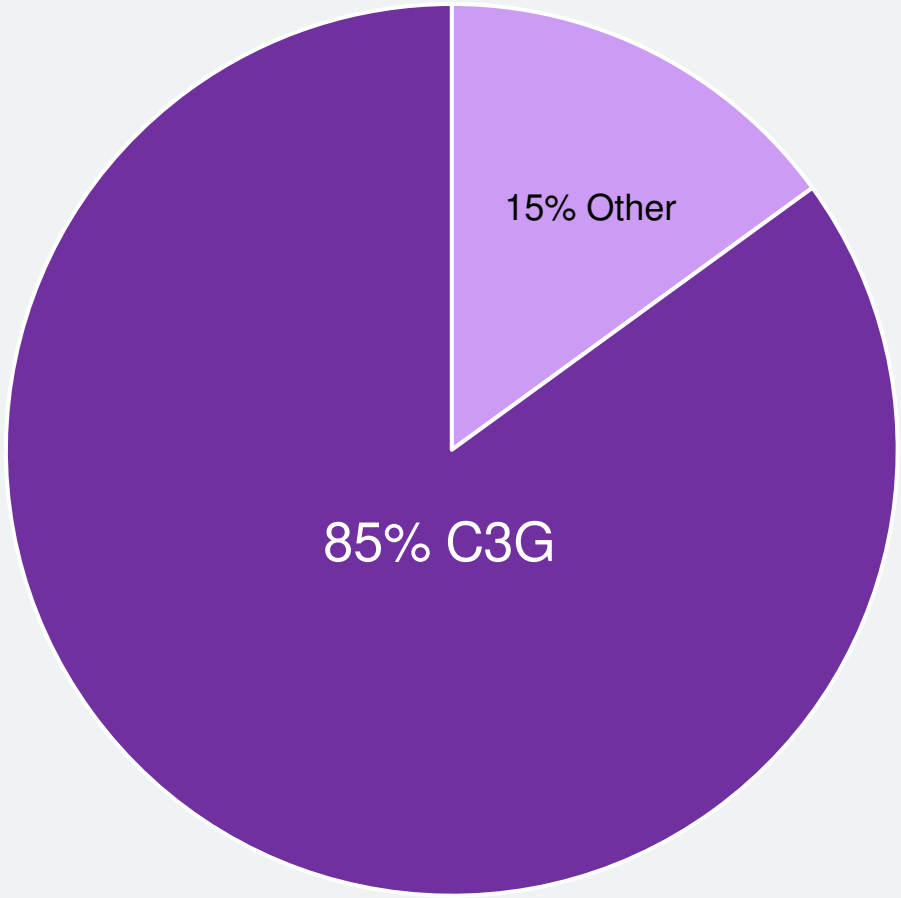
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Haskap Phenolic Profile



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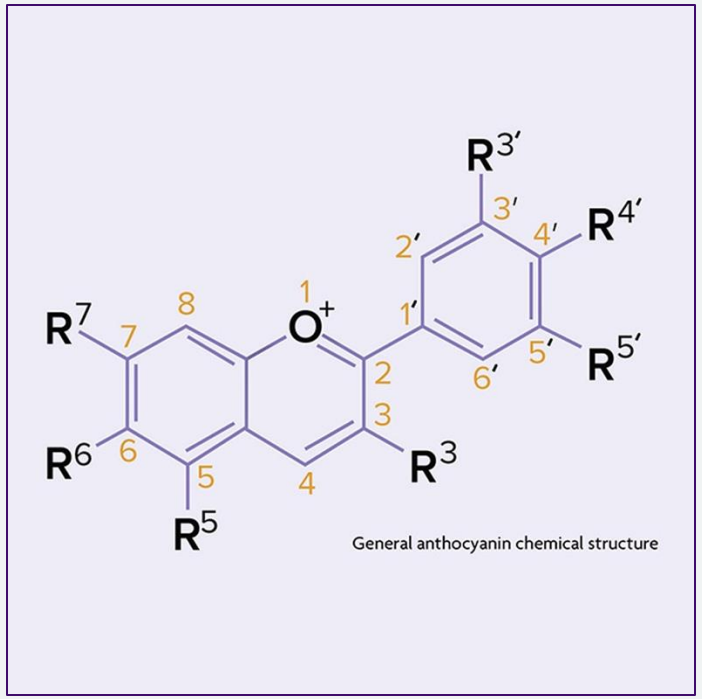
Haskap Berry Anthocyanin Profile



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How much anthocyanin do we need?

Epidemiological studies suggest 18-44 mg/day anthocyanin may be beneficial



General anthocyanin chemical structure

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How much anthocyanin do we need?

> **“It can be safely stated that daily moderate intake (50 mg anthocyanins, one-third cup of blueberries) can mitigate the risk of diseases and conditions of major socioeconomic importance in the Western world.”**

Wilhelmina Kalt, Aedin Cassidy, Luke R Howard, Robert Krikorian, April J Stull, Francois Tremblay, Raul Zamora-Ros, Recent Research on the Health Benefits of Blueberries and Their Anthocyanins, *Advances in Nutrition*, https://doi.org/10.1093/advances/nmz065

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Haskap berry research

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The potential health benefits of haskap (*Lonicera caerulea* L.): Role of cyanidin-3-*O*-glucoside

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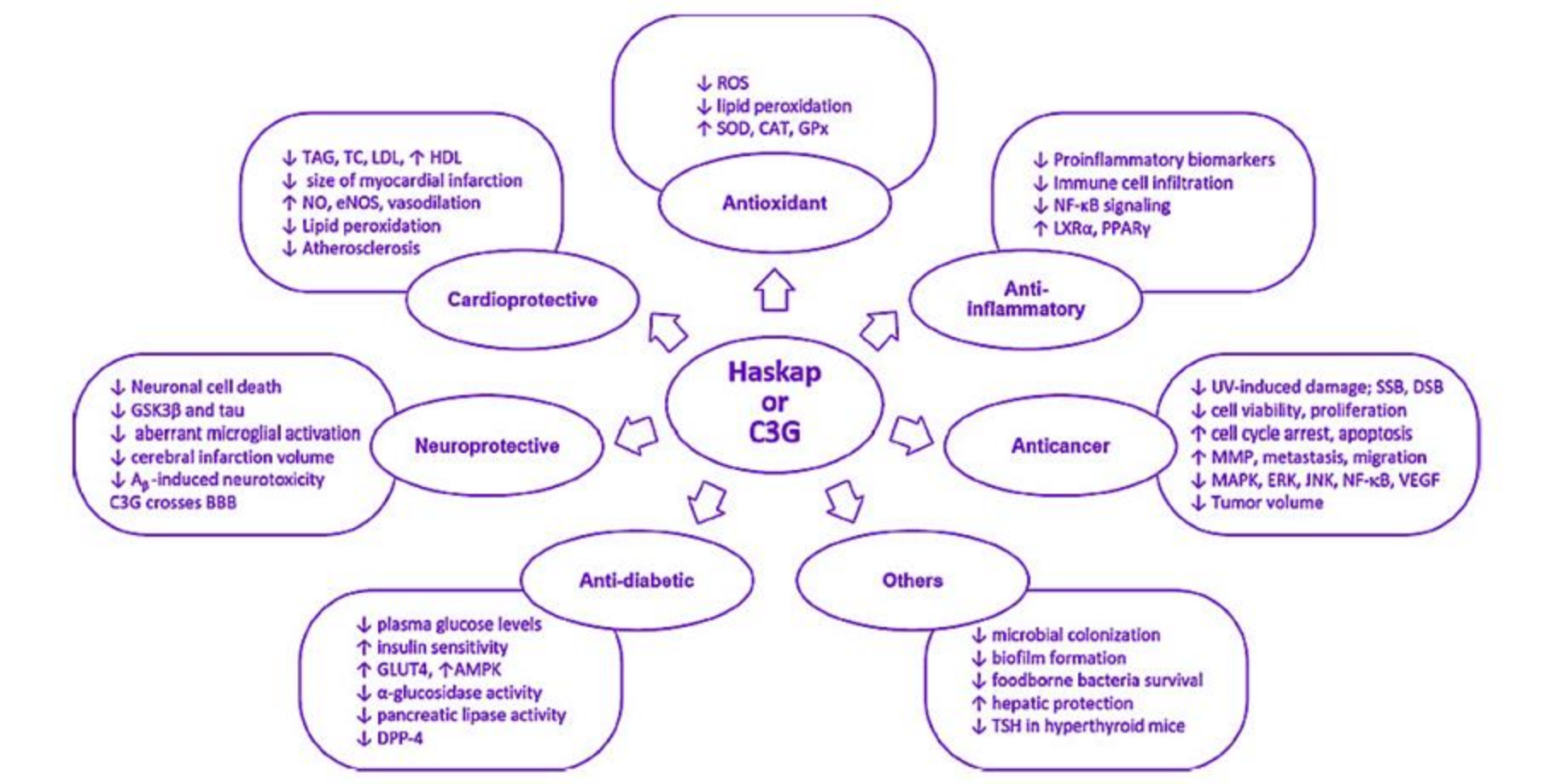
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Chronic diseases
Physiological function

ABSTRACT

Haskap (*Lonicera caerulea* L.), an emerging commercial fruit crop in North America, has been known for its medicinal benefits amongst the people of Russia, Japan, and Northeastern China for centuries. The vitamin C content in haskap berries, ranging between 29 and 187 mg/100 g, is significantly higher than in other vitamin C-rich sources such as oranges, strawberries, and raspberries. Cyanidin-3-*O*-glucoside (C3G) is the major anthocyanin present in haskap comprising about 79–92% of its total anthocyanin content and over 60% of the total polyphenols. Considerable evidence shows significant antioxidant, cardio-protective, anti-inflammatory, neuroprotective, anticancer, and anti-diabetic properties of C3G-rich haskap preparations and C3G alone both *in vitro* and *in vivo*. This review broadly discusses the *in vitro* and pre-clinical significance of haskap-mediated cytoprotection and disease prevention; thereby, we strongly suggest further exploration of C3G-rich haskap preparations as potential functional food, dietary antioxidant supplements as well as natural health products targeting specific chronic and metabolic diseases.

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Physiological roles and potential health benefits of haskap/C3G



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Our first haskap berry clinical study!

A pilot dose–response study of the acute effects of haskap berry extract (*Lonicera caerulea* L.) on cognition, mood, and blood pressure in older adults

Dr Lynne Bell & Prof. Claire M. Williams

Nutritional Psychology Lab Group, University of Reading

European Journal of Nutrition December 2018



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A pilot dose–response study of the acute effects of haskap berry extract (Lonicera caerulea L.) on cognition, mood, and blood pressure in older adults *European Journal of Nutrition December 2018*

Methods:

- Double-blind clinical study
- Acute effects of three haskap berry extract doses; 100, 200, 400 mg anthocyanins, and sugar matched placebo
- 20 older adults, aged 62–81 years
- Measures of cognition, mood, and BP recorded at baseline and after 90 minutes

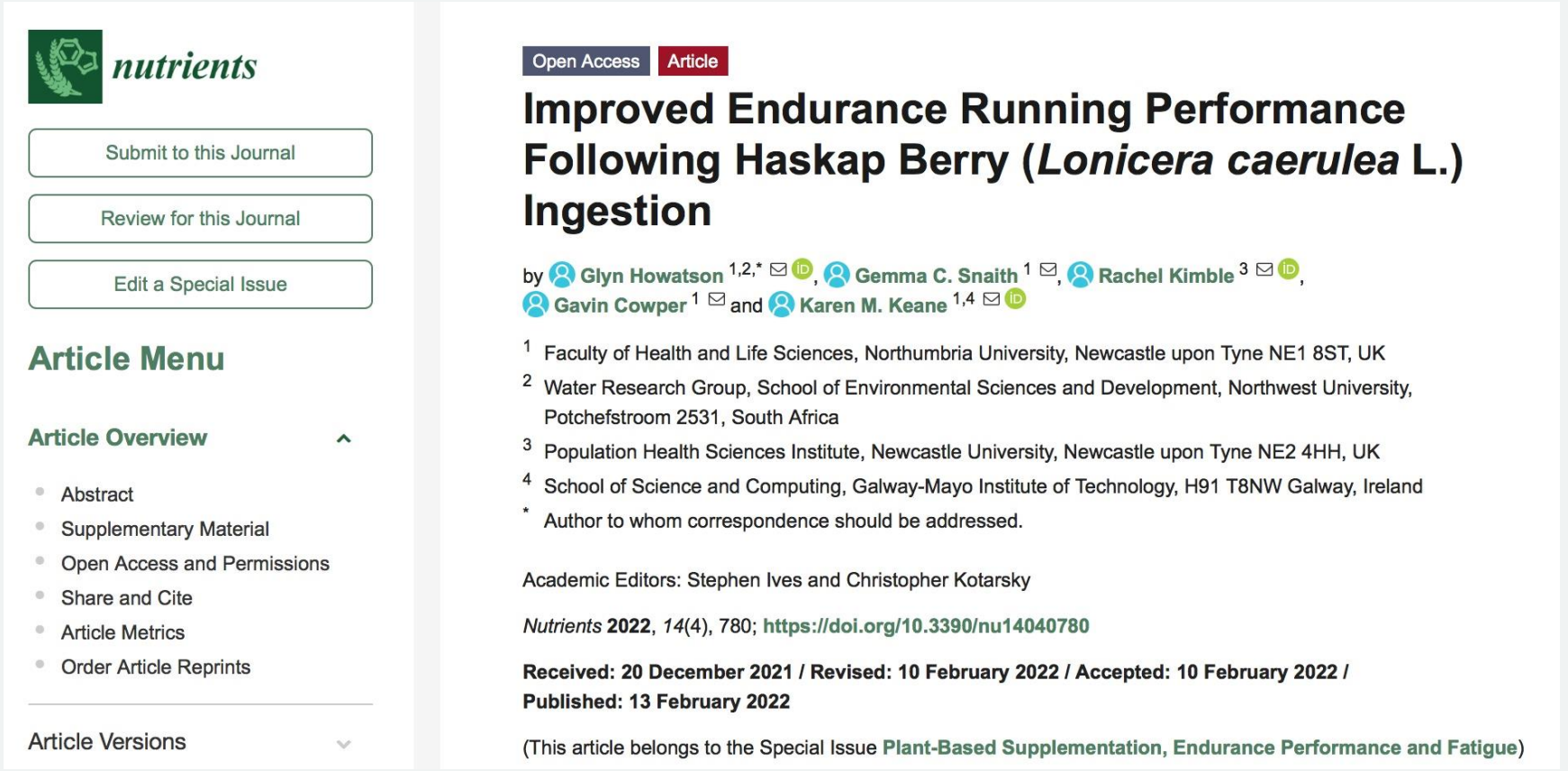
Results:

- Improvements in cognition (word recall and recognition-episodic memory effects)
- Improvements in diastolic blood pressure
- Higher doses more effective

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Our second study!

Sports endurance research with Northumbria University



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Improved Endurance Running Performance Following Haskap Berry (*Lonicera caerulea* L.) Ingestion

by Glyn Howatson [1,2,*], Gemma C. Snaith [1], Rachel Kimble [3], Gavin Cowper [1] and Karen M. Keane [1,4]

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Sports endurance research with Northumbria University

https://www.youtube.com/watch?v=8DUV3LawqVk

Professor Glyn Howatson

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New Haskapa Study for 2025



- Reading University
- Measuring cognition, blood pressure and flow mediated dilation (blood vessel health)
- Women over 50
- Chronic study – over 1 month
- 90 participants
- 3 arms
  - Haskapa plus
  - Haskapa
  - Placebo

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Products & Uses





- Freeze dried 100% Haskap Berry Powder
- Organic freeze dried 100% Haskap Berry Powder
- 100% Organic Haskap Berry Juice
- 100% Organic Haskap Berry & Ginger Juice





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Research papers

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