

A new Western Australian flavonoid-rich apple, **Bravo™**, and vascular health





Background

A large, central image of a black bomb with a lit fuse, emitting a bright yellow starburst of light. The bomb is positioned inside a red, circular, layered structure that resembles a cross-section of a heart or a target. The background is white with a subtle red shadow beneath the bomb.

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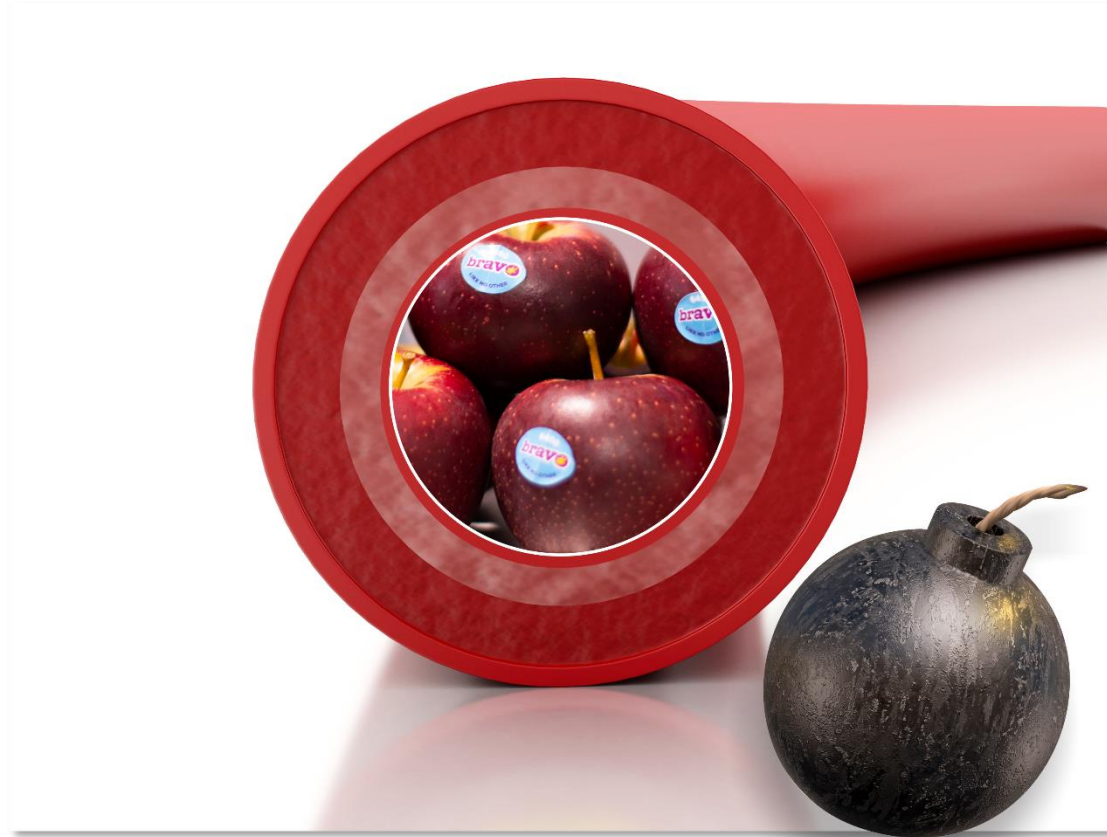
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Today, 41 people will lose their lives to sudden cardiac death

News / 2016.09.01

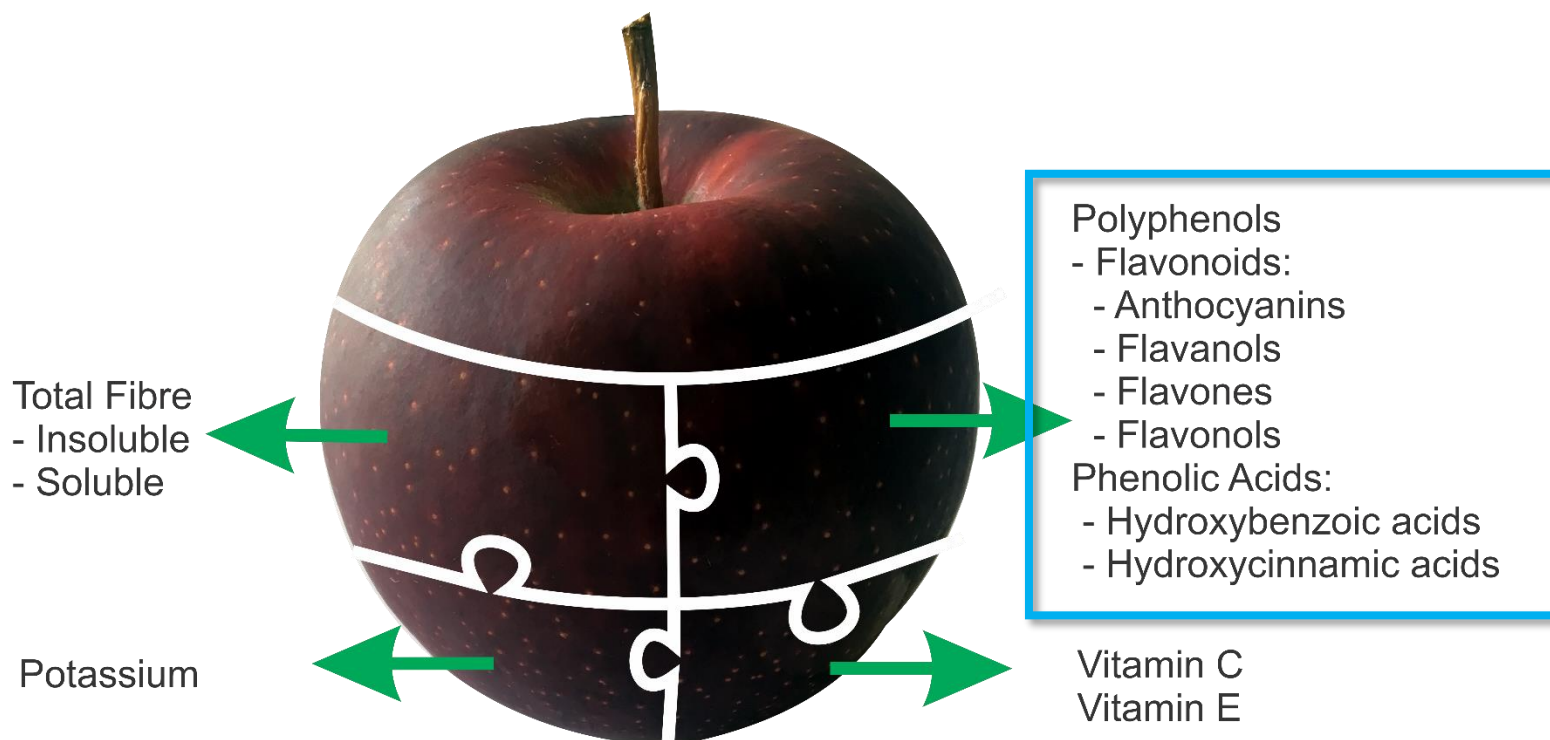


Background





Background

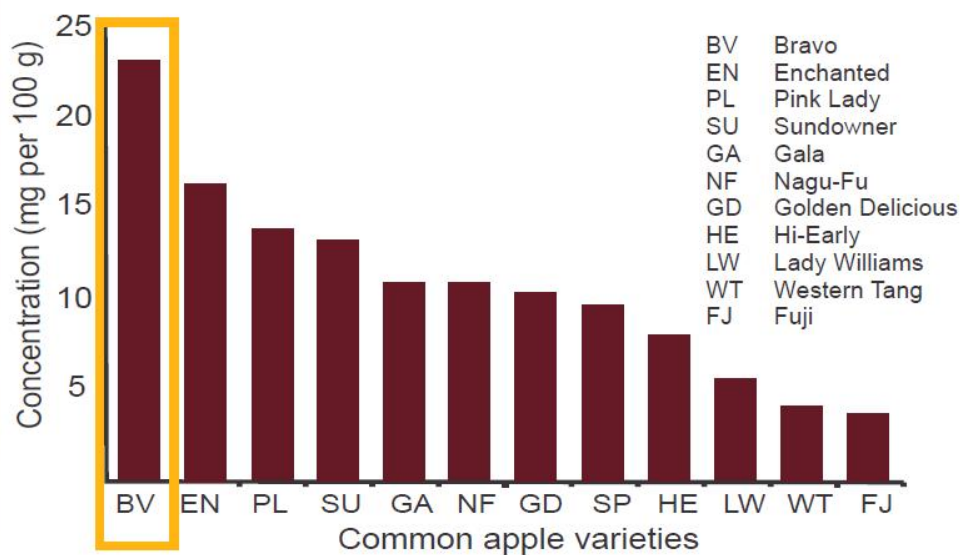




Background



Total flavonoids in Australian apples





Background

Phytochemicals and macronutrient composition of BRAVO™ apple

<u>Flavonoids</u>	Amount in 100g	<u>Vitamins</u>	Amount in 100g
Quercetin (mg)	16.17	Vitamin C (mg)	<1.0
Epicatechin (mg)	0.95	Beta-Carotene (ug)	43
Phloridzin (mg)	0.7	Vitamin E (mg)	0.3
Anthocyanins (mg)	3.54	Vitamin K1 (ug)	<1.0
<u>Energy & macronutrients</u>		<u>Elements</u>	
Total sugars (g)	13	Calcium (mg)	3.7
Total fat (g)	<0.2	Iron (mg)	0.31
Protein (g)	0.3	Magnesium (mg)	5.5
Carbohydrates (g)	15	Phosphorous (mg)	8.3
Energy (kj)	270	Potassium (mg)	130
Fibre, total dietary (g)	1.5	Zinc (ug)	74





Clinical trial

Aim

To determine if short-term regular **Bravo™** apple intake (4 weeks) results in a sustained benefit on measures of vascular health in individuals with at least one risk factor for cardiovascular disease.





Clinical trial

Participants

30 non-smoking men and women (20-70 years of age) from the general population with one or more of the following:

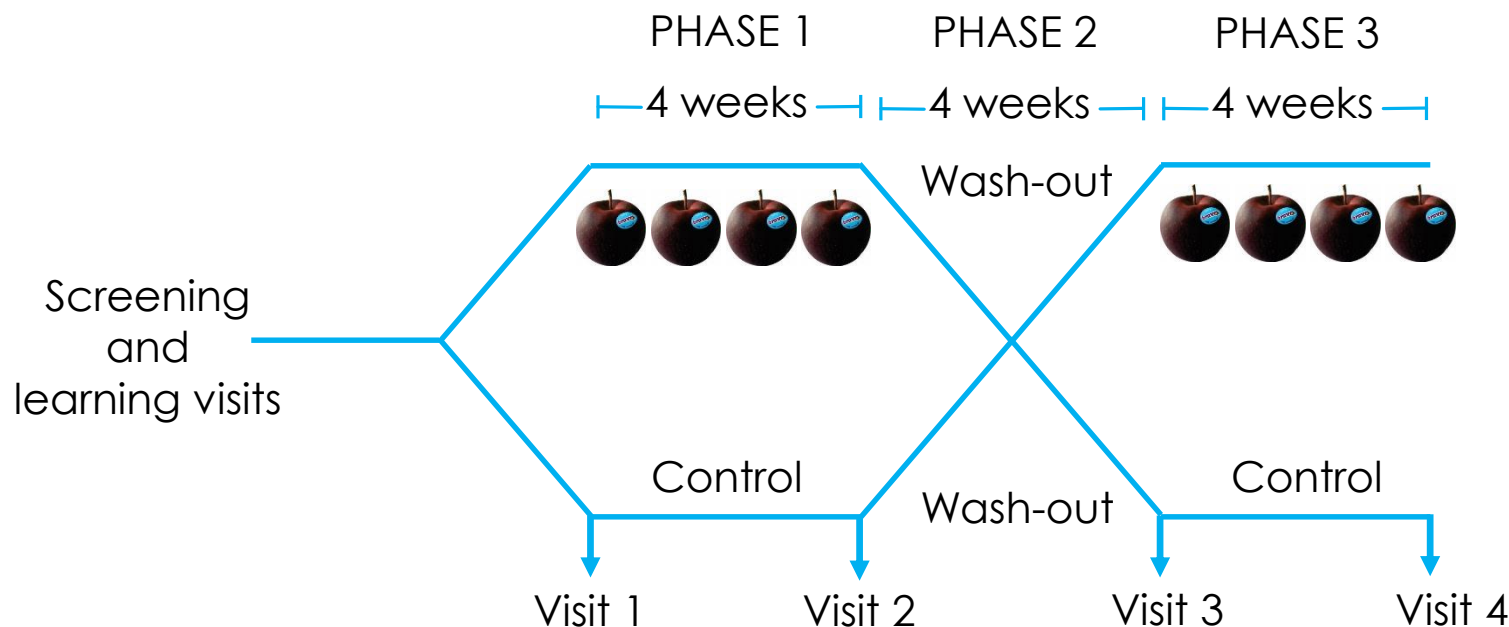
- Slightly elevated blood pressure ($120 < \text{systolic BP} < 160$)
- High blood sugar ($5.6 < \text{glucose} < 6.5$)
- High cholesterol ($5 < \text{total cholesterol} < 8$)
- Central obesity (men $> 94\text{cm}$; women $> 80\text{cm}$)





Clinical trial

Study design

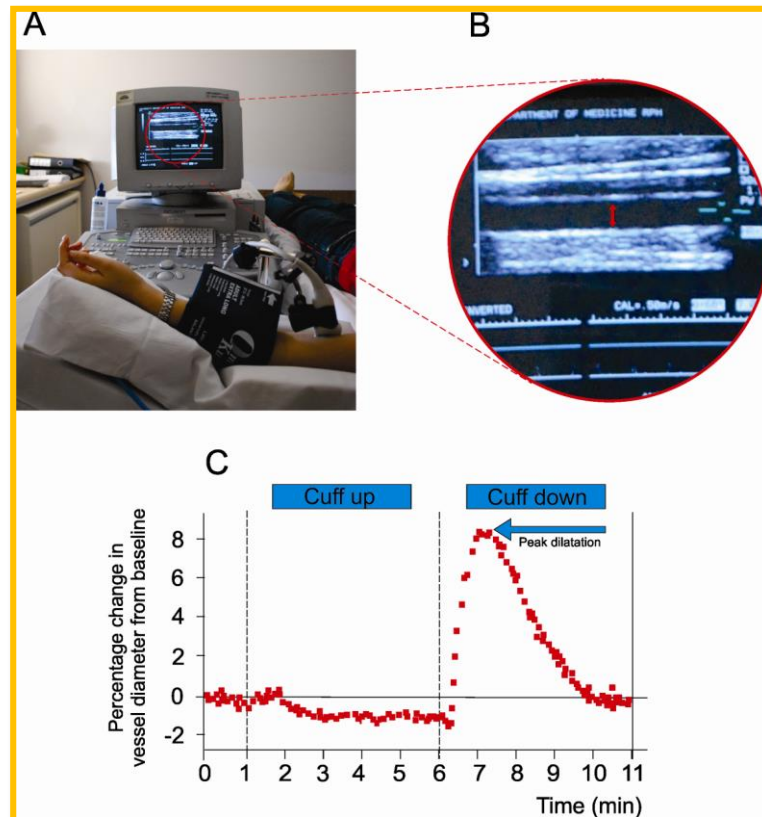




Clinical trial

Measurements

1. Flow mediated dilatation





Clinical trial

Measurements

2. Blood pressure

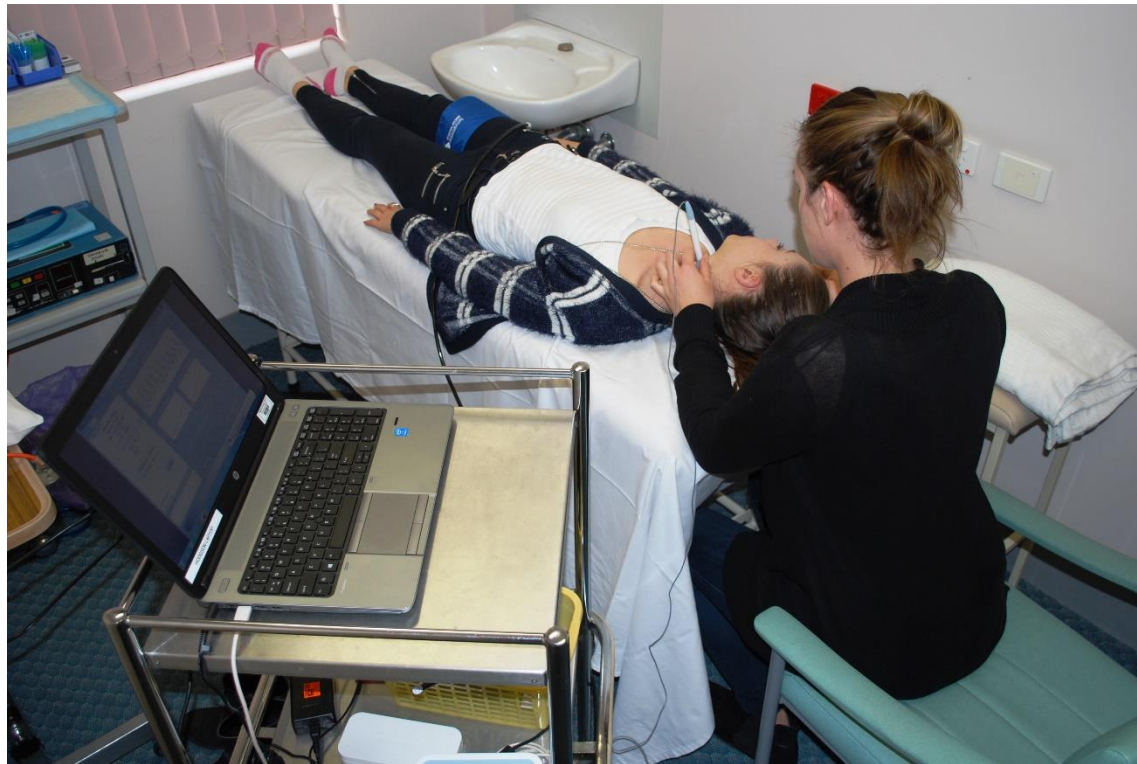




Clinical trial

Measurements

3. Arterial stiffness



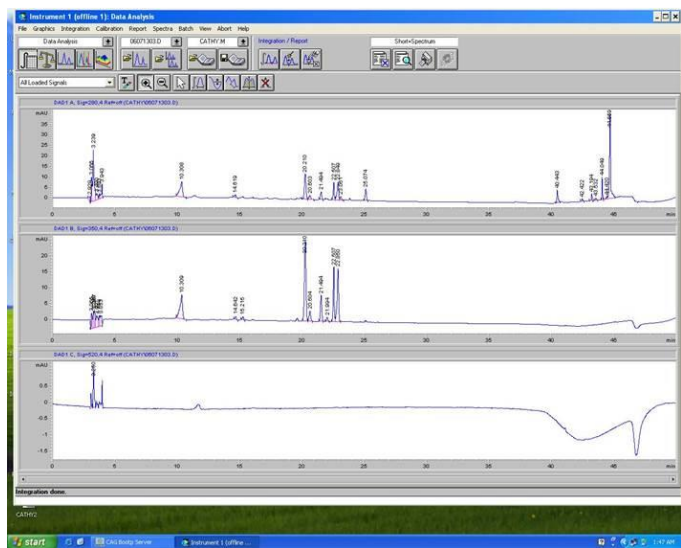


Clinical trial

Measurements

4. Gut microbiome

5. Flavonoid metabolites





Clinical trial

Progress to date

Interested participants after Today Tonight show and newspaper advert: 343

Telephoned screened: 50

Baseline screened: 44

Randomised to participate in the clinical trial: 36

Have withdrawn due to personal reasons: 6

Visits complete: 30 participants

Preliminary report of primary outcome: March 2019





Clinical trial

Results in 2019

Blood pressure and arterial stiffness: [December 2018](#)

Flow mediated dilatation: [March 2019](#)

Gut microbiome and flavonoid metabolites: [December 2019](#)



bravo™

LIKE NO OTHER™

a new heart healthy apple
bred and grown in Australia



Reports in the media

Today tonight





Reports in the media

The Sunday Times



Apple a day really keeps doctor away

TREVOR PADDENBURG

NEW research proves an apple a day really does keep the doctor away – and WA apples are among the best.

That's according to a study by Royal Perth Hospital's Medical Research Foundation, which found that WA-grown pink lady and bravo apples are packed with the most "bioactive compounds" and antioxidants, particularly for those at risk of heart disease.

Research associate Nicky Bordonno, whose work focuses on foods that can help prevent heart disease, the leading cause of death in Australia, said apples were one of the best choices hungry West Australians could make.

That's because apples are high in "flavonoids", also known as antioxidants, found in the skin of the apple.

Flavonoids work by increasing a molecule produced in blood vessels and plays a critical role in cardiovascular health by regulating blood pressure and flow.

"Consuming as little as two to three apples each week is associated with lower risk of heart disease," Dr Bordonno, who was awarded a research fellowship to travel to the UK for two years to continue her work, said.

"I was not a big apple eater before starting this research, but now I try to eat an apple a day and have noticed a big improvement in my gut health."

The study, carried out in conjunction with the University of WA and Edith Cowan University, found apples must be eaten whole, not peeled, for maximum health benefits.

She recommended WA's new bravo apple, which is bred for its high flavonoid content, as well as pink lady and golden delicious varieties.

UWA senior research fellow Michael Considine said one clinical trial involving pink lady apples showed improved blood vessel function within hours of eating an apple.

A second trial showed the effects were sustained following four weeks of eating an apple a day.

He said breeding strategies would mean the apples of the future could be packed with even more health benefits.

She's apples: Nicky Bordonno with a basket full of goodness.
Picture: Justin Benson-Cooper



Reports in the media

ECU Research uncovered





Reports in the media

ECU Halloween special



Baked Apple Vampires

== INGREDIENTS ==

- 4 apples
- 1 cup walnuts
- 1 cup sultanas
- 1 tbsp cinnamon
- 32 cloves (whole)
- 4 slivered almonds
- Honey to drizzle

== METHOD ==

Preheat oven to 180°C.

Wash and core apples.

Place each apple on a square of tinfoil (enough to wrap the apple tightly for baking).

Chop walnuts and mix together with sultanas and cinnamon. Fill each apple half way up with the walnut, sultana, cinnamon mix.

Place a drizzle of honey on top of the mixture in the apple.

Fill the rest of the apple up with the walnut, sultana, cinnamon mix.

Decorate outside of apple with cloves for eyes and slivered almond for a tongue, then wrap tightly in tin foil and place on a baking tray and bake for an hour.

SERVING SUGGESTION: Serve with yoghurt (we photographed our Apple Ghouls before baking!)



Reports in the media

ECU Halloween special

<https://www.facebook.com/ECUjourney/posts/10155922114182742>

