

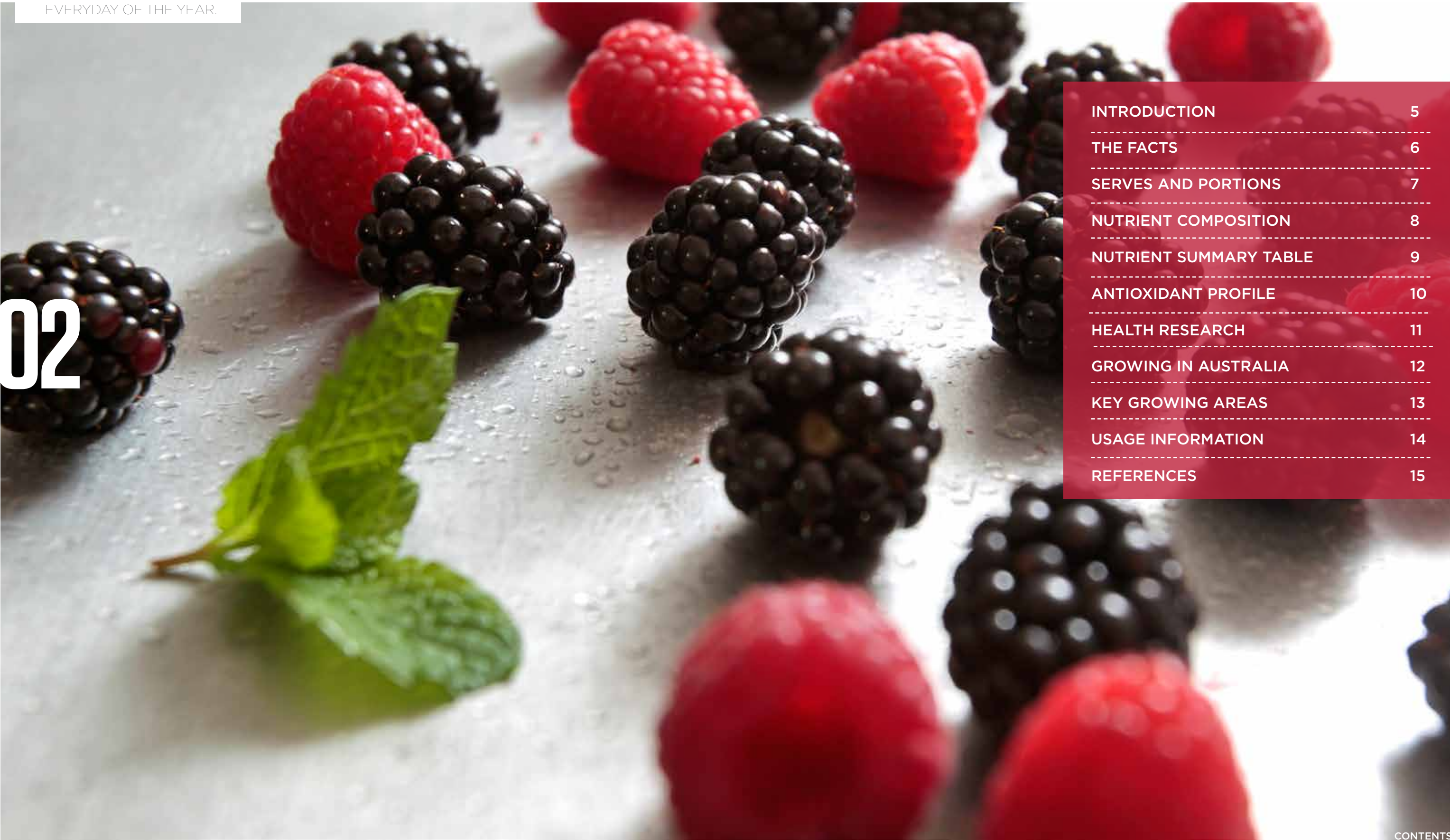
FRESH, NUTRITIOUS AND DELICIOUS...

# RASPBERRIES & BLACKBERRIES: *a healthy punnet*



HEALTH AND NUTRITION OVERVIEW  
APRIL 2016





EVERYDAY OF THE YEAR.

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## INTRODUCTION

Emma Stirling APD introduces...

### Raspberries and Blackberries

Fresh raspberries and blackberries are a popular inclusion in the Australian diet, known for their sweet, decadent flavour and culinary versatility. However, the lesser told story is that raspberries and blackberries offer a host of nutritional benefits, while also being naturally low in energy density.

We often hear about the latest 'super foods' being Amazonian berries or a revival of another ancient grain. However, scientific research demonstrates Australian raspberries and blackberries are super in their own right, as an excellent source of fibre, key vitamins and minerals, and antioxidant activity.

With similar nutrition profiles, this report provides an overview of the health benefits of both raspberries and blackberries, along with a summary of the available scientific research over the past decade.

Raspberries and blackberries are two of my personal favourites and I'm excited to share the latest nutrition information, along with some usage tips, so all Australians can enjoy these vibrant and flavoursome treats.

A little-known fact is that fresh berries are available almost all year-round. However key growing seasons span from November to April. With an increasingly robust industry, Australians can find fresh berries in their local supermarket, farmers market or grower during this peak season and throughout the year.

In my role as an accredited practising dietitian, I recommend fresh berries as a healthy snack or in recipes to make every day meals a little more exciting. One of my favourite tips is to stock up on fresh produce such as raspberries and blackberries while they're in season, and freeze them to enjoy in later months.

Happy eating!

Emma Stirling, APD

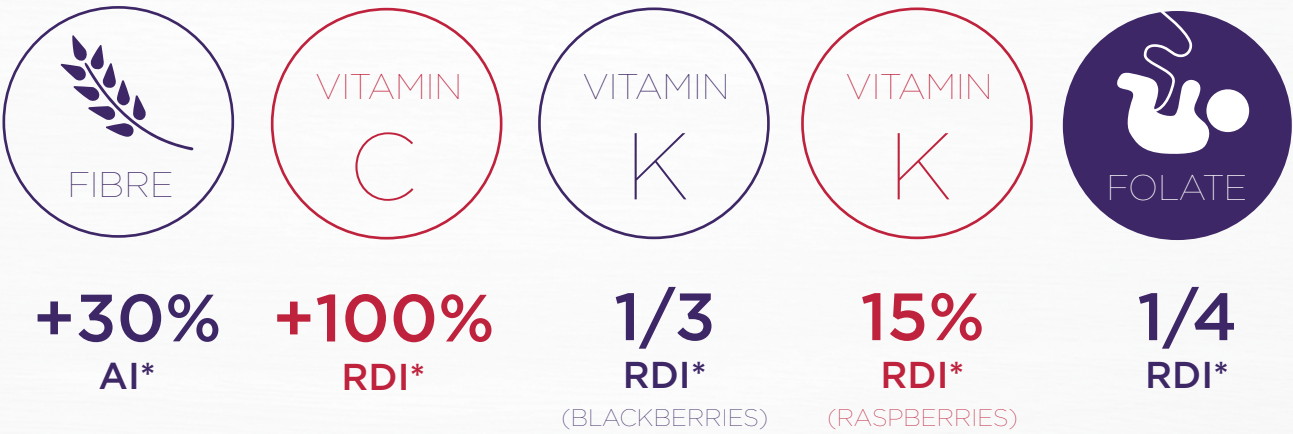
**FRESH AUSTRALIAN RASPBERRIES AND BLACKBERRIES ARE UNSUNG NUTRITION HEROES, WITH SCIENTIFIC RESEARCH CONTINUING TO BUILD, REVEALING AN INTERESTING HEALTH STORY.**



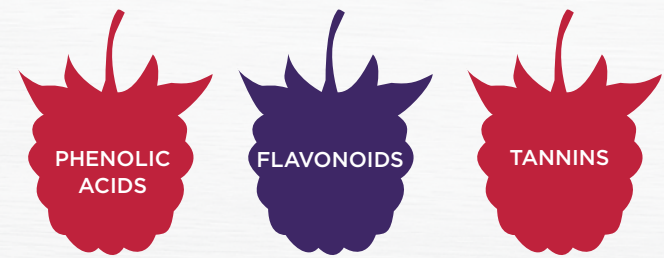
THE FACTS

RASPBERRIES AND BLACKBERRIES HAVE A POWERFUL NUTRITION STORY TO TELL...

THEY ARE NATURALLY LOW IN ENERGY DENSITY BUT PACKED FULL OF ESSENTIAL NUTRIENTS:



THEY ARE PACKED FULL OF PHYTONUTRIENTS WITH ANTIOXIDANT ACTIVITY TO FIGHT FREE RADICALS AND PROTECT AGAINST CANCER AND CELLULAR AGEING:



GOOD FOR YOUR GUT!

BERRIES ARE BEING STUDIED FOR THEIR POTENTIAL TO HELP WITH WEIGHT MANAGEMENT AND LIFESTYLE RELATED DISEASES

\*Based on 150g serve and AI/RDIs for Australian men and women

SERVES AND PORTIONS

The Australian Dietary Guidelines define a serve of fruit as around 150 grams, or one cup, and recommend Australian adults eat two serves of fruit a day.<sup>1</sup>

The recommendation for daily fruit intake for children ranges from half a serve a day for toddlers, increasing to one serve a day for two to three year olds, one and a half for four to eight year olds and two serves a day for children nine and over.

Two serves of fruit a day may be made up of several portions of different types of fruit, depending on taste preferences, seasons and the type of fruit you are eating.

Australian raspberries and blackberries generally come in 125g punnets, which means a likely portion would be 125g as a snack on its own, or a smaller 60g handful included with yoghurt or breakfast cereal for instance.

Whatever the portion size, Australian raspberries and blackberries offer a boost of nutrients and antioxidant activity. For a detailed nutrient breakdown across a range of serve and portion sizes, refer to the table on the next page.





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NUTRIENT COMPOSITION

Energy

Raspberries and blackberries contain just 210-225kJ per 100g, or less than 300kJ for an entire punnet. They are naturally low in fat and high in water content, which makes them juicy and luscious to eat.

Fibre

Both raspberries and blackberries are an excellent source of dietary fibre, containing 9.2g per 150g serve. Dietary fibre is known for its importance for bowel health, however it can also increase satiety to assist with healthy weight management.

Vitamin C

A 150g serve of raspberries or blackberries offers more than the recommended daily intake (RDI) for vitamin C. Specifically, raspberries contain 48mg vitamin C per 150g serve, and blackberries contain 57mg per 150g serve.

Vitamin K

Vitamin K is an important vitamin for helping blood to coagulate or “clot”, and for growth and development in children. A serve of raspberries contains 11.7µg, or 15% of the RDI. Blackberries contain 29.7µg or 37% of the RDI.

Folate

Raspberries and blackberries are both good sources of folate, important for healthy growth and development, especially of the foetus during pregnancy. A 150g serve provides around a quarter of the RDI for adults and children three years and older. Specifically, raspberries contain 51µg per 150g serve, or 26% RDI, and blackberries contain 54µg, per 150g serve or 27% RDI.

RASPBERRIES AND BLACKBERRIES OFFER A RANGE OF IMPORTANT NUTRIENTS WHILE BEING NATURALLY LOW IN ENERGY DENSITY, MAKING THEM A PERFECT MID-MEAL SNACK, TOPPING FOR BREAKFAST CEREAL, ADDITIONS TO SALAD OR A FRESH DESSERT WITH A DOLLOP OF GREEK YOGHURT

NUTRIENT SUMMARY TABLE



	Raspberries per 100g^	Blackberries per 100g^	Raspberries per 125g punnet	Blackberries per 125g punnet	Raspberries per 150g serve	Blackberries per 150g serve
Energy (kJ)	225	221	281	264	338	317
Protein (g)	1.2	1.4	1.5	1.8	1.8	2.1
Fat (g)	0.5	0.3	0.4	0.4	0.5	0.5
Saturated Fat (g)	0.1	0.0	0.12	0.0	0.15	0.0
Carbohydrate (g)	7.4	7.5	9.3	9.4	11.1	11.3
Sugars (g)	7.0	7.5	8.8	9.4	10.5	11.3
Fibre (g)	6.1	6.1	7.6	7.6	9.2	9.2
Vitamin C (mg)	32.0	38.0	40.0	47.5	48.0	57.0
Vitamin E (mg)	0.77	1.4	1.0	1.8	1.2	2.1
Vitamin K* (µg)	7.8	19.8	9.8	24.8	11.7	29.7
Folate (µg)	34.0	36.0	42.5	45.0	51.0	54.0
Calcium (mg)	28.0	30.0	35.0	37.5	42.0	45.0
Sodium (mg)	1.0	0.0	1.3	0.0	1.5	0.0
Magnesium (mg)	22.0	30.0	27.5	37.5	33.0	45.0
Phosphorous (mg)	37.0	29.0	46.3	36.3	55.5	43.5
Potassium (mg)	169.0	114.0	211.3	142.5	253.5	171.0

^ Source: NUTTAB 2010 (<http://www.foodstandards.gov.au/science/monitoringnutrients/nutrientables/nuttab/Pages/default.aspx> )

\* Source: United States Department of Agriculture Agricultural Research Service National Nutrient Database for Standard Reference Release 28 (<http://ndb.nal.usda.gov/>)



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ANTIOXIDANT PROFILE

Raspberries and blackberries are richly pigmented and packed full of phytonutrients, such as phenolic acids, flavonoids and tannins, which can act as antioxidants to help fight free radicals and protect against cardiovascular disease, cancer and cellular ageing.<sup>2-5</sup>

RASPBERRIES AND BLACKBERRIES ARE A NATURAL SOURCE OF ANTIOXIDANT ACTIVITY

Anthocyanins are a flavonoid responsible for the vibrant colour of raspberries and blackberries. Anthocyanins are particularly abundant in raspberries and blackberries and have been researched for their potential anticancer, anti-inflammatory and anti-ageing action.<sup>4,5</sup>

Raspberries and blackberries also have particularly high levels of ellagitannins, a class of polyphenols that are relatively uncommon in other fruits and vegetables. With powerful antioxidant activity, anti-inflammatory

and antibacterial properties, the high levels of ellagitannins present in raspberries and blackberries are reported to give them a health punch more powerful than many other fruits and vegetables.<sup>3,6,7</sup>

In vitro and in vivo studies have revealed various mechanisms through which anthocyanins and ellagitannins (via ellagic acid or their urolithin metabolites) could reduce the risk of, or reverse metabolically associated chronic diseases.<sup>8</sup> It has been suggested that anthocyanins can act as pro-antioxidants and change cellular redox status, resulting in various redox-sensitive cell signaling responses, including the stimulation of endogenous antioxidant defense systems.<sup>8</sup>

Raspberries and blackberries are typically consumed in fresh form soon after purchase and their antioxidant capacity is not reduced during typical storage.<sup>9</sup>



THE HIGH LEVELS OF ELLAGITANNINS PRESENT IN RASPBERRIES AND BLACKBERRIES MAY GIVE THEM A HEALTH PUNCH MORE POWERFUL THAN MANY OTHER FRUITS AND VEGETABLES

HEALTH RESEARCH

Lifestyle Diseases

It is well accepted that consuming a diet rich in fruits and vegetables is associated with a reduced risk of several lifestyle related diseases, including cardiovascular disease, type 2 diabetes, Alzheimer's disease, and certain cancers.<sup>8</sup>

The research on raspberries and blackberries spans decades, however there has been a lack of specific randomised controlled trials in humans, compared to other more commonly eaten fresh produce. Raspberries and blackberries are often studied as part of a mixed diet rich in several plant foods, so it can be difficult to draw specific varietal conclusions. That said, while few studies in humans are yet available for evaluation, the body of research is growing and researchers are predicting a very bright future.<sup>8</sup>

A new 2016 review on raspberries and health published in *Advances in Nutrition* found the key areas of interest for research include cancer, cardiovascular disease, type 2 diabetes. A few publications also focused on on weight management and neurodegeneration, all of which share critical metabolic, oxidative and inflammatory links.<sup>8</sup>

The review discusses that in vivo animal data have supported many of the in vitro findings, suggesting raspberries, including various extracts and individual components, have anti-inflammatory, antioxidative, and metabolic-stabilising activity. Furthermore, these effects were associated with improvements on relevant endpoints, such as reduced blood pressure, improved lipid profiles, decreased atherosclerotic development, improved vascular function, stabilisation of uncontrolled diabetes symptoms and improved functional recovery in brain injury models.<sup>8</sup>

While preclinical work dominates, researchers concluded the current body of evidence provides important efficacy and mechanistic data that suggests a key role in health, warranting follow-up research in humans.<sup>8</sup>

Weight Management and Obesity

The combination of their low energy value and high nutrient benefits, including being an excellent source of dietary fibre to increase satiety, make raspberries and blackberries an excellent choice for weight management eating plans.

Previous in vivo and in vitro research has claimed that raspberry extracts may have anti-obesity effects beyond the context of energy contribution to the diet.

Raspberries ketone supplements have attracted mainstream media attention for their reported benefits to help 'beat the bulge'. With a similar structure to capsaicin in chillies, it's suggested that raspberry ketones may alter lipid metabolism, improve fatty liver and 'help shift fat tissue'.<sup>2,3,4</sup> However, the recent 2016 review states that the examination of body weight changes in response to red raspberries extracts is limited and mixed, with a lack of human clinical trials.<sup>8</sup>

Therefore the message is very clear to promote the food first principle to patients, clients and consumers, and that there is a lack of evidence of any benefit from berry-based dietary supplements.

Gut Health

Raspberries and blackberries are being studied for their role in the exciting new area linking a healthy gut microbiota with weight management, lifestyle disease risk reduction and even a positive mind and mood. It is proposed that ellagitannin-rich berries, such as raspberries and blackberries, increase the intestinal abundance of beneficial bacteria within the mircobiota and the production of protective compounds such as butyrate.<sup>10</sup>



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RASPBERRY AND BLACKBERRY GROWING IN AUSTRALIA

About Raspberries

While raspberries are most abundant from early November until May, with peak production during summer, Australia's diverse climate means that fresh Australian raspberries are available in supermarkets and green grocer stores almost all year round. The raspberries that are available in the winter months are grown in northern NSW and southern QLD.

There are a range of varieties of raspberries, some are lighter in colour while others are a deep red when ripe. All raspberries have similar nutritional profiles.

Australia has over 180 raspberry growers, producing approximately 2,800 tonnes of raspberries each year. The industry has tripled in size over the past four years.

Australian raspberries are grown across the country, with key growing areas highlighted on the map on the next page.

About Blackberries

Blackberries are mostly grown in southern regions of Australia and are available from early November until April.

There are several varieties that fruit sequentially, to provide a range of berries from dark-coloured round fruit, to elongated berries available across the period. Each variety of blackberry has its own unique flavour, varying in aroma, acidity and strength of flavour.

Australia has 40 blackberry growers, producing approximately 500 tonnes of blackberries each year. The Australian blackberry industry is growing, but at a slower rate than the Australian raspberry industry. This is due to fewer varieties suitable for local growing environments, along with the harvest season confined to summer months only.

Australian blackberries generally need a cooler climate, with majority of production occurring in Victoria and Tasmania.



KEY GROWING AREAS



GROWER PROFILE

Robin and Simon Dornauf  
Tasmania

Meander Valley Berries is an iconic, family run farm in the heart of the scenic Tamar Valley. Owner Robin Dornauf has been growing fresh Australian berries since 1985.

For the past five years, Robin has been running the farm with his son Simon Dornauf, producing fresh raspberries and blackberries along with strawberries and blueberries.

Meander Valley Berries enlists a team of around 180 people help pick the berries in peak season. This year, Robin and Simon expect to produce more than 85 tonnes of raspberries and from 15 to 30 tonnes of blackberries.



## USAGE INFORMATION

### Selecting Fresh Berries

Raspberries and blackberries can be quite fragile, especially when stored or displayed outside of refrigerated conditions, so it's important to know what to look for when selecting fruit.

Berries should look firm, plump and glossy, and have an even colour (indicating ripeness). Raspberries should be a light and bright red colour, while blackberries can vary in colour from a true black to a dark, glossy, purple colour. Bear in mind some varieties can vary in luster and colour, depending on the type of fruit.

There should be no signs of bruising, leaking juices in the package, or showing signs of mould or other damage.

### Storing Fresh Berries

Raspberries and blackberries are highly perishable and are best eaten within one or two days of purchase.

Raspberries and blackberries should be stored in the refrigerator, in the punnets in which they were purchased. However to enjoy the best flavour, allow berries to return to room temperature before eating.

Berries can be eaten straight from the punnet and should not be washed before eating as this can damage the fruit, causing it to go 'mushy'.

If you plan to freeze fresh berries, you must very gently rinse them in cool water and dry in a colander or on paper towels. Following this, place individual berries on a sheet of wax paper and pop in the freezer. Once frozen, transfer the berries into zip lock bags or containers – this way, berries won't stick together and you can use them as required.

Other techniques for storing berries out of season, include dehydrating (using a dehydrator or the oven on low heat for 15-18 hours), by creating a coulis or jam, or stewing the fruit and freezing for later use.

### Enjoying Fresh Berries

Raspberries and blackberries are incredibly versatile, and can be enjoyed on their own or with a plethora of both sweet and savoury dishes. Here are some great-tasting partners for fresh berries:

#### 🍷 Raspberries:

Rhubarb, thyme, ginger, stone fruits, lemon, vanilla, goat cheese, ricotta, kangaroo, chocolate and ice-cream.

#### 🍷 Blackberries:

Almonds, duck, venison, beef, black pepper, cinnamon, stone fruits, melon, lemon, chocolate and cream.

For more usage tips and recipe ideas visit [freshberries.com.au](https://freshberries.com.au).

## REFERENCES

1. Eat for Health. Australian Dietary Guidelines. Commonwealth of Australia 2013.<https://www.eatforhealth.gov.au/food-essentials/how-much-do-we-need-each-day>

2. Heinonen M. Antioxidant activity and antimicrobial effect of berry phenolics--a Finnish perspective. *Mol Nutr Food Res*. 2007 Jun;51(6):684-91.

3. Venketeshwer Rao A, Snyder DM. Raspberries and Human Health: A Review. *J Agric Food Chem*. 2010;58:3871-83.

4. Bowen-Forbes C, Zhang Y, Nair M. Anthocyanin content, antioxidant, anti-inflammatory and anticancer properties of blackberry and raspberry fruits. *Journal of Food Composition and Analysis*. 2010;23:554-60.

5. Nile S, Park S. Edible berries: Bioactive components and their effect on human health. *Nutrition*. 2014;30:134-44.

6. Landete J. Ellagitannins, ellagic acid and their derived metabolites: A review about source, metabolism, functions and health. *Food Research International*. 2011;44:1150-60.

7. Kähkönen M, Kylli P, Ollilainen V, Salminen J, Heinonen M. Antioxidant Activity of Isolated Ellagitannins from Red Raspberries and Cloudberries. *J AgricFood Chem*. 2012;60:116774.

8. Burton-Freeman B.M., Sandhu A.K., & Edirisinghe, I. Red Raspberries and Their Bioactive Polyphenols: Cardiometabolic and Neuronal Health Links *Adv Nutr* 2016;7:44-65; doi:10.3945/an.115.009639.

9. Skrovankova, S., Sumczynski, D., Mlcek, J., Jurikova, T & Sochor, J. Bioactive Compounds and Antioxidant Activity in Different Types of Berries *Int. J. Mol. Sci.* 2015, 16, 24673-24706; doi:10.3390/ijms161024673

10. Puupponen-Pimiä R, Seppänen-Laakso T, Kankainen M, Maukonen J, Törrönen R, Kolehmainen M, et al. Effects of ellagitannin-rich berries on blood lipids, gut microbiota, and urolithin production in human subjects with symptoms of metabolic syndrome. *Mol Nutr Food Res*. 2013;57(12):2258-63.





This project has been funded by Horticulture Innovation  
Australia Limited using funds from the Australian  
Blackberry and Raspberry Industry levy and  
funds from the Australian Government.

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