



A factsheet for health professionals

# Almonds

## for weight management

**Overweight and obesity is a major risk factor for cardiovascular disease, type 2 diabetes, some musculoskeletal conditions and some cancers.<sup>2</sup>**

**Rates of obesity are rising rapidly in Australia, with approximately 2 in 3 adults and 1 in 4 children reportedly overweight and obese in 2017-18.<sup>3</sup>**

Gaining excess weight is mostly preventable by living a healthy lifestyle – primarily choosing healthier foods and being more physically active.<sup>4</sup>

Almonds are a nutrient-dense food, rich in healthy monounsaturated fats, plant-based protein and fibre, and a myriad of different vitamins and minerals including vitamin E, calcium, iron and zinc.<sup>5</sup>

Despite their healthy nutritional profile, people trying to lose weight often avoid nuts (including almonds) due to their high energy density. In fact, research shows that consumption of almonds in a balanced diet does not lead to weight gain and may enhance weight loss.

### Recommended daily amount

The Australian Dietary Guidelines recommends **30 grams (a handful)** of nuts, including almonds, every day.<sup>1</sup>

### What your clients and patients need to know

- Almonds are high in protein and fibre, which help to increase satiety and control appetite.
- Eating a handful of almonds (30g) every day as part of a healthy balanced diet will not lead to weight gain and may help achieve weight loss.
- Almonds are a convenient and portable snack that can be eaten anywhere and any time of day.

Despite their high energy content, evidence suggests that the inclusion of almonds in an energy-restricted diet may actually enhance weight loss.



## Research findings: The effect of consuming nuts (including almonds) on body weight measures

### Weight management

A randomised crossover study in 2002 examined 81 male and female participants and the effect on body weight of daily almond supplementation over six months. During two sequential six-month periods, diet, body weight and habitual exercise were evaluated and almonds were provided only during the second period. Results revealed that incorporating 54g of almonds in the diet daily for six months did not, on average, lead to significant changes in body weight.<sup>6</sup>

Epidemiological studies looking at nuts further support these findings, revealing no association or a negative association between nut consumption and body weight.<sup>7,8</sup> In addition, a 2013 meta-analysis of 33 clinical trials found that diets enriched with nuts did not increase body weight.<sup>9</sup>

Strengthening these findings, a 2018 updated systematic literature review looked at seven intervention studies and eight analyses around almond consumption and weight measures.<sup>10</sup> The review concluded that consuming almonds was not associated with adverse changes in weight-related measures (body mass index, body fat, waist circumference, waist-hip ratio or lean body mass). Therefore, current evidence continues to support the position that, in the context of a healthy diet, almond consumption does not result in weight gain.

### Weight loss

Despite their high energy content, evidence suggests that the inclusion of almonds in an energy-restricted diet may actually enhance weight loss. A 2003 randomised study looked at the effect of almond consumption in the context of a 24-week weight-loss program.<sup>11</sup> The participants either consumed a liquid formula-based low-calorie diet (LCD) enriched with 84g almonds per day or a liquid-based LCD supplemented with complex carbohydrates. The results found greater reductions in weight in the almond-enriched group.

A 2012 study looked at evaluating the effects of a low-calorie, almond-enriched diet compared with a low-calorie nut-free diet on body weight and cardiovascular disease risk factors over 18 months. Both groups achieved significant short-term weight reduction, which was generally maintained at 18 months. The findings concluded that incorporating limited portions of almonds (56g per day) into a behavioral weight-loss program resulted in significant weight reduction.<sup>12</sup>

### Improvements in body fat, body mass index, waist circumference and waist-hip ratio

A 2016 randomised controlled 12-week trial of 86 healthy adults evaluated the effects of consuming almonds as part of an energy-restricted diet on body composition, compared to a nut-free energy-restricted diet.<sup>13</sup> Results revealed that moderate almond consumption (15% energy from almonds) by compliant overweight and obese individuals during energy restriction resulted in greater proportional reductions of truncal and total body fat.

Similar findings were observed in a 2014 clinical trial that investigated the effects of a balanced hypocaloric almond-enriched diet (50g per day) compared to a balanced hypocaloric nut-free diet on body weight and cardiovascular disease risk factors in 108 overweight or obese women over three months.<sup>14</sup> Results showed that both groups (almond and nut-free) experienced significant weight reduction, with the almonds group achieving greater weight-loss, reduction in body mass index, waist circumference and waist-hip ratio.



## Research findings: How almonds can help with weight management

### Increased satiety and appetite control

Foods that generate strong sensations of satiety can help individuals control their appetite, eat more healthily and manage their weight.<sup>15</sup> It is well established that kilojoule-for-kilojoule not all foods deliver the same level of satiety.<sup>16</sup> For example, in satiety studies where comparison foods were matched for energy content, there is considerable evidence that high-protein foods are more satiating than those that are high in carbohydrate and/or fat;<sup>17</sup> and that fibre-rich foods are more satiating than low-fibre foods.<sup>18</sup>

Whole almonds have a nutritional profile consistent with satiety, being one of the tree nuts highest in plant-based protein and fibre. Research indicates that consuming almonds can have positive effects on appetite control and does not lead to significant changes in body weight.<sup>6,19,20,21</sup>

A 2015 randomised crossover study found that adding 28 or 42g of almonds to the diet as a mid-morning snack was likely to increase satiety responses in a portion-dependent manner, leading to reductions in subsequent food intake so that total energy intake over the day was not increased.<sup>22</sup>

This supported the findings of a 2013 four-week randomised controlled trial, which assessed the outcomes of consuming 43g of almonds daily with meals or as snacks.<sup>20</sup> Results showed that overall daily energy intake was reduced to compensate for energy from the almonds and did not increase the risk of weight gain among participants.

### Increased resting energy expenditure

A biological mechanism that may explain the ability of nuts (including almonds) to improve body weight measures is through having a greater thermogenic effect.<sup>23</sup> This means consuming nuts (including almonds) increases the amount of energy and fat used by the body at rest, leading to less fat accumulation, therefore potentially curbing weight gain. This could be because nuts (including almonds) are rich in healthy unsaturated fatty acids, which are more readily oxidized (or burned) by the body than saturated fatty acids.<sup>24</sup>

### Decreased fat absorption

The fat in almonds is stored within its cell walls, which has shown to impact the amount of fat available for digestion.<sup>25,26,27</sup> Research has shown that when whole almonds are consumed, not all cell walls are broken down when chewing, making the fat less bioaccessible and leading to incomplete fat absorption in the gut. Instead, some of the fat passes through the body and is excreted in faeces.<sup>25,26</sup> This decreased absorption of fat in the body may also be a reason why almonds do not contribute to weight gain. Further, evidence suggests that we may only absorb 70% of the total calories contained in almonds.<sup>28</sup>

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