

Q6. List up to 4 topics from the existing Guidelines which you believe should be updated in the review (for example food safety or vegetable intake). Please provide a brief explanation for each topic suggested.

Topic 1: A review of the 'food' versus 'nutrient' recommendations that underpin the ADGs, to have greater regard for holistic nutrition and food matrix science.

The current Australian Dietary Guidelines (ADGs) are broadly founded on holistic science acknowledging that we eat foods, not nutrients. The body of research informing this approach has grown significantly, shifting our understanding of the way whole foods affect our health and wellbeing.

Increasing appreciation of the complexity of food structures has led to the concept of the 'food matrix'. The food matrix construct identifies that food is comprised of both a nutritional matrix and a physical matrix which work in concert to affect nutrient digestion, absorption and bioavailability.

This growing body of science has identified that, for whole foods, nutrient content does not necessarily predict the health impact of a food. This has been particularly evident in the case of dairy's (milk, cheese and yoghurt) matrices (1). This phenomenon recognises that the health effects of a food are more than just the sum of its nutrients. For example, when included in a balanced diet, cheese contains saturated fat and sodium, yet consumption is not associated with heart disease (2) and, flavoured milk may contain added sugar, however consumption is not associated with weight gain (3).

Consideration of the physical structure of foods has added a pivotal piece to our understanding of the way whole foods impact our health. We know different physical forms of food matrices such as liquid, semi-solid or solid can impact nutrient digestion, absorption and bioavailability, as can forms of processing such as those resulting in a fermented matrix (for example, yoghurt).

Thereby, the review of the ADGs must consider the science around the food matrix and the associated health benefits, when defining a food group or food. A nutrient based guideline that simply recommends limiting added sugar, fat and salt, discourages the consumption of foods that are based on core foods and that are extremely nutrient dense but might contain only small or modest levels of these nutrients. For example, flavoured dairy milk, yoghurt and custard where the evidence suggests these foods can be included in a healthy dietary pattern.

1. Thorning TK et al. Whole dairy matrix or single nutrients in assessment of health effects: current evidence and knowledge gaps. *Am J Clin Nutr* 2017;105:1–13.
2. Drouin-Chartier JP et al. Systematic review of the association between dairy product consumption and risk of cardiovascular-related clinical outcomes. *Adv Nutr.* 2016 Nov 15;7(6):1026-1040.
3. Fayet-Moore F et al. Australian children and adolescents who were drinkers of plain and flavored milk had the highest intakes of milk, total dairy, and calcium. *Nutr Res.* 2019 Jun;66:68-81.

Topic 2: A review of the evidence supporting the inclusion of regular fat milk, cheese and yoghurt in the diet

The current Australian Dietary Guidelines (ADGs) recommend consumption of plain and flavoured milk, cheese, yoghurt and/or alternatives (including custard), *mostly reduced fat*. However, many public health organisations or authoritative bodies interpret this recommendation to mean consumption of reduced fat dairy only.

Since the last review of the ADGs, research supporting the inclusion of regular fat milk, cheese and yoghurt in the diet has grown substantially. No evidence currently supports a detrimental effect of regular fat dairy products compared with reduced fat dairy on a range of cardiometabolic disease risk factors including stroke, type 2 diabetes, CVD (1) and overweight and obesity (2).

Based on the findings of more than 56 studies published between 2013-2018, the recently updated Heart Foundation guidelines now recommend that regular fat milk, cheese and yoghurt can be considered a daily option for healthy Australians – revised from previously recommending reduced fat only (3).

While the recommendation to include ‘mostly reduced fat’ milk, cheese and yoghurt was more so based on kilojoules/dietary modelling, the current evidence base suggests a need to revisit current dietary guidance on regular fat dairy foods aligned with health outcomes, alongside revised modelling of a more contemporary Australian diet. All types of milk, cheese and yoghurt (including regular and reduced fat and plain and flavoured varieties) have a role to play in a healthy diet that is supported by a body of evidence.

1. Drouin-Chartier JP et al. Systematic review of the association between dairy product consumption and risk of cardiovascular-related clinical outcomes. *Adv Nutr.* 2016 Nov 15;7(6):1026-1040.
2. Abargouei AS et al. Effect of dairy consumption on weight and body composition in adults: a systematic review and meta-analysis of randomized controlled clinical trials. *Int J Obes (Lond).* 2012 Dec;36(12):1485-93.
3. Heart Foundation of Australia. Dairy and Heart Healthy Eating. Available: https://www.heartfoundation.org.au/images/uploads/publications/Nutrition_Position_Statement_-_DAIRY.pdf.

Topic 3: A review of the evidence and definition of ‘plant-based products’ including (but not limited to) nutrient quality and quantity, bioavailability and established health outcomes.

The current Australian Dietary Guidelines (ADGs) recommend consumption of plain and flavoured milk, cheese and yoghurt (as well as custard), while allowing for calcium-fortified plant-based products as part of this food group – currently termed ‘dairy alternatives’.

Since the release of the 2013 ADGs, there has been significant growth in the types of plant-based products available to consumers i.e. almond, rice and pea beverages; plant-based ‘cheese’ and ‘yoghurts’, which may/ not be fortified and claim to be suitable alternatives to dairy foods. Overseas, synthetic or lab-based milks are also gaining significant attention and momentum.

Whilst recognising the need for plant-based products for consumers with true medical conditions, the concern lies with plant-based products being termed ‘dairy alternatives’ that have varied nutritional profiles (1) and do not have the same established health benefits as dairy foods (as outlined in the evidence statements in the 2013 ADGs) - but are typically labelled and advertised as suitable substitutes for dairy milk, cheese and yoghurt.

Recently, through the FSANZ’s consultation on the Fortification of Nut and Seed Beverages (A1104), jurisdictions raised many concerns pertaining to these products, including concerns around variability in composition, their low nutritional value and nutritional equivalence to dairy foods.

While there should be options for those who do not want to, or cannot consume dairy foods, an international study which compared milk and plant-based beverages found these products typically contained less protein, had a higher Glycaemic Index, and calcium was less available (2).

Consumers also perceive a shift to plant-based beverages as being healthier and better for the environment (3). CSIRO have looked at the water footprint, for example, of plant-based beverages and some have a lower water footprint, and some have a higher water footprint (4), so a recommendation to swap to plant-based, is not that simple. Furthermore, 99% of liquid milk is locally sourced from Australian dairy farmers (5) and Australian milk is also used to make a variety of other locally available dairy products helping to minimise the environmental footprint.

Public confusion exists and the ADGs have an important role to play in helping consumers make informed decisions based on the best available scientific evidence. It is imperative that the review of the ADGs reconsiders the terminology 'dairy alternatives' and the current evidence base around plant-based products that can provide nutritional and health benefits for consumers who cannot or choose not to consume dairy – whilst also having regard for innovation and the changing food supply.

1. Zhang Y et al. Got Mylk? The emerging role of Australian plant-based milk alternatives as a cow's milk substitute. *Nutrients*. Apr 28;12(5):1254.
2. Chalupa-Krebsdark et al. Nutrient density and nutritional value of milk and plant-based milk alternatives. *Int Dairy J*. 2020;87(1):doi.org/10.1016/j.idairyj.2018.07.018
3. Lewers 2020. Dairy Australia Trust Tracker (wave 8).
4. Ridoutt B et al. Diet quality and water scarcity: Evidence from a large Australian population health survey. *Nutrients*. 2019;Aug; 11(8): 1846.
5. Dairy Australia, 2021, unpublished data.

Topic 4: A review of the recommendation to limit cheese to two-three times per week, as per the 2013 Eat for Health – Educators Guide.

Cheese, along with milk and yoghurt (plain and flavoured) are part of the 'dairy food group', recommended to be enjoyed every day as part of a wide variety of nutritious foods in the 2013 Australian Dietary Guidelines (ADGs). The ADGs state that for calcium "very few other foods in the Australian diet contain as much of this important nutrient".

More than that, milk, cheese and yoghurt have unique matrices of nutrients, bio-actives and physical structures and a multitude of associated health benefits. However, the dairy food group is accompanied by the qualifier 'mostly reduced fat' linked to concerns around the saturated fat and kilojoule content of this category. Cheese then receives an additional qualifier of "limiting consumption to two-three times per week", as per the Eat for Health Educators Guide. Note, this is despite specific portion and serve recommendations being in place.

In the Australian Health Survey, cheese intake accounted for only 7% of saturated fat intake and yet was the second largest provider of dietary calcium. (1) We know that the dairy food group is the second most under-consumed food group, after vegetables, with more than 90% of Australian children and adults failing to consume their recommended serves each day (1), resulting in more than 50% of Australians not meeting their daily calcium requirements. (2)

For the one third of Australians that do eat cheese each day, on average only 12g is consumed – that is less than one-third of the ADGs recommended 40g serving sizes. (3)

A raft of evidence on cheese consumption and health outcomes has been published since the last review of the ADGs. Within this, is the recently updated Heart Foundation dairy guidelines which

now recommend that regular fat cheese can be considered a daily option for healthy Australians – revised from previously recommending reduced fat only. For dairy, this was based on the findings of more than 56 studies published between 2013-2018 (4).

Thereby the current evidence and consumption guidelines for cheese need to be reviewed, with the outcomes and recommendations consistent throughout all published ADG resources.

1. Australian Bureau of Statistics. 4364.0.55.012 - Australian Health Survey: Consumption of Food Groups from the Australian Dietary Guidelines, 2011-12. 2016.
2. Australian Bureau of Statistics. 4364.0.55.007 - Australian Health Survey: Nutrition First Results - Foods and Nutrients, 2011-12. 2015.
3. Australian Bureau of Statistics. Australian Health Survey: Nutrition First Results – Foods and Nutrients, 2011-2012; Cat No. 4364.0.55.007. Australian Bureau of Statistics: Canberra, Australia, 2014.
4. Heart Foundation of Australia. Dairy and Heart Healthy Eating. Available: https://www.heartfoundation.org.au/images/uploads/publications/Nutrition_Position_Statement_-_DAIRY.pdf.

Q7. List up to 4 topics, not already included in the Guidelines, which you believe should be considered for inclusion in the review. Please provide a brief explanation for each topic suggested.

Topic 1: Sustainable dietary patterns should be considered for inclusion in the review, including the role of dairy foods in a healthy, sustainable diet.

Sustainable eating is an important component we can address in the effort to preserve our planet. A sustainable diet is one that balances nutrition, social, economic and environmental considerations. Extreme planetary diets that only prioritise environmental considerations at the expense of accessible, affordable, adequate nutrition, do not encourage a sustainable way of eating into the future.

The Australian dairy industry promises ‘to provide nutritious food for a healthier world’, reflected in its internationally recognised Dairy sustainability framework. The industry has made commitments to the environment, animal welfare, the prosperity of people and communities and feeding the population nutritious, healthy food as part of a sustainable eating pattern. (1) CSIRO research demonstrates that Australian diets that are healthier and lower in greenhouse gas (GHG) emissions include core dairy foods, that is milk, cheese and yoghurt – all fat types and both plain and flavoured varieties. (2) A third of Australian diets are made up of discretionary foods that lead to overconsumption of food energy, gaps in nutrient intake, health and economic consequences and inflation of environmental impacts. Replacing discretionary foods with ‘core’ or five-food group foods such as dairy, will have the most significant impact on reducing Australian's dietary environmental footprint. (3) In addition, consuming an appropriate amount of food and avoiding food waste by buying what you need leads to a lowering of resource use and environmental burden in the food system. (3)

Australia has a thriving dairy industry meaning dairy foods like milk, cheese and yoghurt are an accessible and affordable source of high-quality nutrition with proven health benefits. The ability to buy locally made dairy foods ensures money goes back into local communities and families through income and job creation.

Recommending a healthy, sustainable diet for the general population in the ADGs must be done using Australian farming, agriculture and food production data. Sustainable eating patterns must

also be clearly defined and should take a holistic view beyond single nutrients or environment alone, to recognise each of the pillars of nutrition, culture, economic and environment with the goal of achieving harmony across all.

1. Australian Dairy Industry Sustainability Framework. Available: www.sustainableairyoz.com.au
2. Ridoutt BG et al. The role of dairy foods in lower greenhouse gas emission and higher diet quality dietary patterns. *Eur J Nutr.* 2021;60, 275–285.
3. Ridoutt BG et al. Diet quality and water scarcity: evidence from a large Australian population health survey. *Nutrients.* 2019; 11(8):1846.

Topic 2: Processing and the need to take a holistic approach to eating when providing recommendations.

Sorting, chopping, grinding, mincing, trimming, cleaning, cooking, baking, frying, roasting – all common processing techniques – as is fermentation, fortification and genetic modification. The ability to produce low-fat foods or alter the sweetness of products, all rely on processing, as does the ability to reduce food spoilage, extend shelf-life, increase food safety and reduce food waste.

For the dairy industry, pasteurisation, homogenisation and fermentation are common practices to enable the safe production of nutritious milk, yoghurt and cheese products. Sweetening dairy, delivers texture and flavour attributes to the product, and can also reduce spoilage (1).

Therefore, with a long history of use, the *processing* of food and beverages plays an important role in both the safety and availability of product choices in the diets of Australian consumers. Processing lends to health, convenience and the environment.

The review of the Australian Dietary Guidelines (ADGs) should acknowledge this and the advances technology brings to food production – opting for language such as ‘food technology’, ‘food innovation’, ‘food safety’ and ‘food choices’ to explain the ‘how and why’ of food production – as opposed to language such as ‘ultra-processed’ or generic (overly simplified) recommendations to ‘limit processed foods’. The review of the ADGs needs to analyse and understand how food systems work and the necessary steps to produce safe and fresh food (without compromising nutrition), understanding the spectrum of food processing – before any conclusions or food categorisations on food production methods are drawn.

We recommend an evidence-based review of the research and consumer insights on the role of processed food or food production – positive or negative – on diet quality and health outcomes holistically having regard for the food, nutrition, health outcomes, lifestyle and the environment.

- (1) McCain HR, Kaliappan S, Drake MA. Invited review: Sugar reduction in dairy products. *J Dairy Sci.* 2018 Oct;101(10):8619-8640. doi: 10.3168/jds.2017-14347. Epub 2018 Aug 20.

Topic 3: Healthy dietary patterns across the life stages that reflect variety and social/cultural aspects of eating.

Dietary pattern analysis seeks to understand how people are eating and identifies accessible and familiar foods and the combinations in which these foods are consumed. Dietary patterns change with each life stage; as we age different foods and nutrients become more important.

Good nutrition is paramount throughout life and can act as a preventative measure for poor health later in life. It is imperative that the revised Australian Dietary Guidelines (ADGs) evaluate the most current research on dietary patterns that promote health and best protect against Australia's most prevalent NCDs and chronic conditions.

Beyond nutrition, food and food culture has an important role in bringing enjoyment and social connection to many people's lives. Australia's multiculturalism has had a significant impact on our food culture, from the wide availability of Australian grown and produced food, to the way we eat in Australia. In addition to this, Australian's experience wide diversity from a social economic status that has a major impact on people's ability to access material and social resources, including basic food (1).

The revised ADGs must consider different nutritional needs across life stages, more current dietary patterns, Australian food production systems and the social/cultural aspects of eating here in Australia – particularly the ageing.

(1) Australian Bureau of Statistics. Census of Population and Housing: Reflecting Australia - Stories from the Census, 2016.

8. What changes would you suggest to the presentation of the [Guidelines](#) and the [Eat for Health resources](#) (for example the [Australian Guide to Healthy Eating](#) or [Food Essentials section](#)) to make them easier to understand and/or use (for example information presented in different ways such as short videos or factsheets)?

To increase the reach and uptake of future Australian Dietary Guidelines (ADG), the following principals are recommended:

- Clearly define the ADGs, versus supporting resources with consistent language and recommendations across all documents.
- Simplify the number of key messages and number of ADG resources.
- Use positive language around dietary recommendations to encourage a positive relationship with food i.e. what to eat and how to eat it, rather than what not to eat (aware 35-41% of energy intake is coming from discretionary foods).
- Better understand and invest in supporting marketing and communications activities to promote the guidelines. This may involve appointing a communication agency at the outset of the review and engaging end-users (i.e., consumers through to health professionals).
- Commit to more frequent reviews of the guidelines (5 years) given the pace at which research is evolving and to ensure currency of science and dietary recommendations.
- Ensure there are visual aspects to the guidelines to help with interpretation whether this be displaying different foods in each food group or demonstrating relatable portion sizes, such as the palm of your hand.
- Show whole foods in their natural state, rather than packaged, such as pasta and cheese without packaging.
- Develop digital education tools, such as podcasts and apps to bring the guidelines to life and increase accessibility.
- Support consumers with the practical application of the guidelines, for example, in the form of recipes.
- Consider the multiple applications and opportunities for the guidelines and tools to be leveraged such as in the Australian Curriculum for health and nutrition education/core

education competencies as well as use by health agencies geared to improving food literacy and cooking skills in vulnerable groups/communities.