FIVE YEAR REVIEW
OF THE HEALTH STAR RATING (HSR) SYSTEM

HSR Technical Advisory Group (TAG)

Saturated Fat

Contents

Summary

Foods high in saturated fat are recommended to be limited under Australian and New Zealand dietary guidelines. This aligns with the inclusion of saturated fat as a negative nutrient in the HSR algorithm.

In the algorithm, products are awarded up to 30 baseline points for a saturated fat content of up to 90 g saturated fat per 100 g of food (90%) (HSR Category 1, 1D, 2/2D) or up to 30 g/100 g (30%) (HSR Category 3/3D). Both the number of baseline points and the range of saturated fat content these points apply to were extended from the original NPSC tool that awarded up to 10 baseline points for up to 10 g saturated fat per 100 g food.

Three quite different concerns have been raised by stakeholders in response:

1. The HSR algorithm does not consider emerging evidence about saturated fat from dairy not being as harmful as saturated fat from other dietary sources. As a result, high fat dairy products are obtaining a lower HSR than other dairy products and some discretionary foods.
2. Nuts and fats and oils can obtain different HSRs which do not take into account their healthy, unsaturated fat content and the equal treatment of all nuts and healthy fats and oils in the dietary guidelines.
3. The weighting of saturated fat in the HSR algorithm may allow some unhealthy foods to obtain a high rating, despite being high in saturated fat.

In relation to Issue 1, evidence from the 2013 Australian Dietary Guidelines (ADG) shows there is a well-established link between saturated fat, serum cholesterol and heart disease. Australian and New Zealand guidelines also recommend consuming mostly reduced or low fat dairy foods. The next review of the ADG may find evidence to support changing this advice, but the current advice is to limit foods high in saturated fat and consume mostly reduced or low fat dairy. Furthermore, the saturated fat content in dairy has already been addressed in the HSR development with the creation of three separate HSR Categories to cover dairy beverages, cheeses and yoghurts. These categories were then scaled to ensure maximum differentiation so that higher saturated fat dairy products obtain a lower HSR than lower saturated fat products. The HSR Advisory Committee (HSRAC) will need to consider if it is more important that the HSR differentiates between products within these dairy categories or between dairy foods and discretionary foods. The HSR algorithm can be adjusted to increase the HSR of all dairy foods so that they rate better than most discretionary foods. However this will also reduce the ability of the HSR to differentiate between high and low fat dairy.

To address Issue 2, changes to the HSR algorithm were considered to try and reduce the range of HSR values between nuts so they received the same rating. However any impact of these changes is likely to be minimal as nuts are already obtaining a high HSR of 3.5 stars or above and the range of values is already quite narrow (3.5-5.0).

Issue 3 also applies to other negative nutrients in the HSC algorithm. There are concerns that some products may obtain a high HSR despite being high in one negative nutrient such as saturated fat and that this may undermine the system. It is important to note that the HSR system is designed to take multiple nutrients into account to provide an overall rating rather than considering a single nutrient.

Analysis of the data in the TAG database shows that the vast majority of foods have a saturated fat content of 10% or less. Adapting the HSR algorithm to apply 30 points over a narrower range of saturated fat values up to 30% results in a minimal impact. The foods impacted have saturated fat levels higher than 10% and include cream, ice cream and high fat cheese – these foods already obtain a low HSR. To consider the impact of increasing the sensitivity of saturated fat in most foods containing 10% saturated fat or less would involve changing the Nutrient Profiling Scoring Criterion (NPSC) that underpins the HSR algorithm. This could be modelled to assess if the impact of increasing the sensitivity of saturated fat at a product level warrants a change to the NPSC algorithm.

Problem definition

Stakeholder submissions on saturated fat

There are three issues related to the treatment of saturated fats in HSR algorithm to consider, based on stakeholder submissions:

1. Consideration given to saturated fat in dairy foods

Some Five Food Group (FFG) dairy foods (milk, yoghurt, cheese and/or alternatives) high in saturated fat obtain a HSR which is lower than some discretionary foods. The concern is that this may encourage consumers to select discretionary foods instead of FFG foods. Intake of FFG dairy foods in the Australian and New Zealand diet is lower than recommended and a low HSR for some products may not support people to consume more of these foods. Respondents have also advised that recent evidence suggests that the saturated fat in dairy may not be harmful and therefore does not warrant the same treatment as the saturated fat in other foods.

A number of respondents advised that the reason 'mostly' low or reduced fat dairy products have been recommended in the Australian[1] and New Zealand[2] dietary guidelines is because of their relatively high energy (kilojoule) content and the potential impact on overweight and obesity rates, rather than their saturated fat content. There was also a concern that the saturated fat content of dairy impacts on the HSR result twice, as saturated fat alone and in its contribution to energy intake.

2. Use of saturated fat rather than unsaturated fat

Saturated fat is included in the HSR algorithm, but healthy poly and mono-unsaturated fats are not included. As a result, the HSR of healthy fats and oils as well as nuts varies, despite these products all being considered equally healthy in the Australian and New Zealand dietary guidelines.

3. Weighting of saturated fat

The algorithm considers both positive and negative nutrients to provide an overall rating. This can result in a high HSR for some foods high in saturated fat but with an otherwise healthy nutrient profile.

A full overview of the issues raised for this category by respondents to the Five year HSR review is provided in Appendix 1 – Summary of feedback related to saturated fat from respondents to the five year HSR Review.

Dietary intake of saturated and trans fatty acids

Intake of saturated and trans fatty acids is higher than recommended in both New Zealand and Australia:

- The average contribution of saturated fat (SFA) and trans fat (TFA) to total energy intake for the Australian population aged 2 years and over was 12.4% which exceeds the Suggested Dietary Target (SDT) (up to 10% of energy intake from saturated and trans fatty acids).[3]
- The average contribution of SFA alone towards total energy intake was 11.8% and 11.9% (exceeded SDT) for Australian males and females aged 2 years and over respectively.
- Among New Zealanders 15 years and above, SFA contributed 13.1% of dietary energy.[4]

---

[1] National Health and Medical Research Council, 2013, Australian Dietary Guidelines, p. 144, available at https://www.nhmrc.gov.au/guidelines-publications/n55

[2] Ministry of Health, 2017, Eating and Activity Guidelines for New Zealand Adults, available at: https://www.health.govt.nz/publication/eating-and-activity-guidelines-new-zealand-adults

[3] Australian Bureau of Statistics, 2014, Australian Health Survey: Nutrition First Results - Foods and Nutrients, 2011-12, Fat, available at: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.007~2011-12~Main%20Features~Fat~707

Linkages with other TAG work

The saturated fat paper links in with the following TAG papers:

- Fats and oils
- Alignment with Australian and New Zealand Dietary Guidelines
- Snack bars (Muesli bars)
- Salty snacks.

Issue 3 also needs to be considered with the other nutrient papers (sugar, sodium) to ensure a consistent approach to analysis of nutrients in the HSR algorithm.

Alignment with system objectives and priorities

Nutrient Reference Values (NRV) for Saturated Fat

- The estimated Acceptable Macronutrient Distribution Ranges (AMDR) related to reduced risk of chronic disease is 20–35% of total energy intake from fat. Taking into account the nature of the food supply and the need for small amounts of fat in the diet, the SDT is that total SFA and TFA comprise no more than 10% of energy intake.
- There is no Estimated Average Requirement (EAR), Recommended Daily Intake (RDI) or Adequate Intake (AI) for total fat set, as it is the type of fats consumed that is associated with many of the physiological and health outcomes.[5]

Dietary guidelines

- The ADG and the New Zealand Eating and Activity Guidelines (NZEAG) translate the nutrient-based NRVs into food-based recommendations. Both Guidelines recommend limiting the intake of foods containing saturated fat and replacing saturated fats with foods high in unsaturated fats (poly- and mono-unsaturated fat).
- Both guidelines recognise that while milk and milk products are highly nutritious and contain protein, vitamins and minerals (such as riboflavin, vitamins A, D and B12, calcium, phosphorus, zinc and iodine), the rationale for recommending mostly low and reduced fat milk and milk products is to reduce the intake of saturated fat and total energy (kilojoules), as these products contribute saturated fat to the diet. The ADG also states that the consumption of dairy foods is not associated with weight change or risk of obesity in adults.
- The ADG and NZEAG include nuts in the lean meat and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans groups. 30 g of nuts are included as a serve as they contribute the same energy as an equivalent serve of meat, although it is acknowledged that nuts and seeds do not have a similar level of protein and nutrients as the meat serve.

[4] Ministry of Health, 2011, A Focus on Nutrition: Key Findings from the 2008-09 NZ Adult Nutrition Survey, available at: https://www.health.govt.nz/publication/focus-nutrition-key-findings-2008-09-nz-adult-nutrition-survey
[5] National Health and Medical Research Council, Ministry of Health, 2017, Nutrient Reference Values For Australia And New Zealand, Nutrients, available at: https://www.nrv.gov.au/nutrients

Consideration of issues raised

Each issue identified in the problem definition will be assessed and addressed separately.

Issue 1. Consideration given to saturated fat in dairy foods in the HSR algorithm

As outlined earlier, some respondents considered:

- The current HSR algorithm does not consider emerging evidence that dairy saturated fat may be less harmful than saturated fat from other dietary sources.
- As a result, high fat dairy products are obtaining a lower HSR than other dairy products and some discretionary foods.
- This may contribute to inadequate intake of dairy foods in Australia and New Zealand.

In response to this issue, it is noted that:

Evidence informing the development of the ADG shows there is a well-established link between dietary saturated fat, serum cholesterol and cardiovascular disease[6].

This relationship is based on evidence related to replacing dietary saturated fat with monounsaturated and polyunsaturated fats, which is associated with improved blood lipid profiles and reduced risk of cardiovascular disease.[5]

However dairy foods are associated with reduced risk of cardiovascular disease

There is Grade B evidence that consumption of at least two serves per day of dairy foods (milk, yoghurt, and cheese) is associated with reduced risk of ischemic heart disease and myocardial infarction.[8] This evidence is related to consumption of cheese, milk and yoghurt rather than consumption of other dairy-based foods such as ice cream. There were few studies examining high fat dairy foods versus low fat dairy foods[7] - the evidence-base for dairy foods primarily comprises small, short-term studies with varied definitions of dairy foods.[5]

Mostly reduced or low fat dairy is recommended to manage saturated fat/energy intake

Modelling undertaken as part of the ADG used reduced and low fat dairy foods and it is understood that the inclusion of 'mostly reduced or low fat' milk, yoghurt and cheese allowed energy and saturated fat requirements to not be exceeded[8]. This is reiterated in the educators guide:

> *However, the milk, yoghurt, cheese group can increase the saturated fat and energy content of a diet if mostly full fat products are chosen*[9]

Dairy is a significant source of saturated fat in Australia and New Zealand

'Milk products and dishes' contribute to 24.9% of saturated fat in the Australian diet for the total population aged 2 years and over. Within this food category, dairy milk (cow, sheep and goat) was the highest contributor at 8.4%, followed by cheese (7.2%); yoghurt contributed 1.4%.[10]

---

[6] National Health and Medical Research Council, 2013, Australian Dietary Guidelines, p. 144, available at https://www.nhmrc.gov.au/guidelines-publications/n55

[7] National Health and Medical Research Council, 2011, A review of the evidence to address targeted questions to inform the revision of the Australian Dietary Guidelines, available at: https://www.eatforhealth.gov.au/sites/default/files/files/the_guidelines/n55d_dietary_guidelines_evidence_report.pdf

[8] National Health and Medical Research Council. 2011, A modelling system to inform the revision of the Australian Guide to Healthy Eating, available at: https://www.eatforhealth.gov.au/sites/default/files/files/public_consultation/n55a_dietary_guidelines_food_modelling_111216.pdf

[9] National Health and Medical Research Council, 2013, Eat for Health Educator Guide, available at: https://www.eatforhealth.gov.au/sites/default/files/files/the_guidelines/n55b_eat_for_health_educators_guide.pdf

For New Zealand, butter and margarine (which includes butter, margarine, butter/margarine blends and reduced-fat spreads) was the largest contributor to saturated fat intake at 8.5% with milk contributing 7.6% (cow, soy, rice, goat and flavoured milk, milkshakes, milk powder).[4]

Intake of milk, yoghurt and cheese is less than recommended

Consumption of dairy foods - Australia

In Australia 14% of males and 6% of females consume the recommended 2½ serves of milk cheese or alternatives per day.[11] Around 29% of all non-discretionary serves of the milk, yoghurt, cheese and alternatives group consumed were from the low fat group (defined as including reduced fat milk and other products having less than 4 g of fat per serving).

Consumption of dairy foods - New Zealand

The NZ Nutrition Survey (2008-09)[4], shows that reduced-fat or trim milk was chosen most of the time by 44.5% of males and 51.9% of females aged 15 years and over. The use of reduced-fat or trim milk increased with increasing age for both males and females.[12]

Saturated fat in dairy has already been addressed in the HSR development

The HSR system takes into account aspects of a food associated with increasing the risk factors for chronic diseases including energy, saturated fat, sodium and total sugars, and the positive aspects of foods such as fruit and vegetable content, and in some cases protein and fibre. The issue about saturated fat being counted twice because of its energy content also applies to sugar in the HSR algorithm and affects all products containing saturated fat, not only dairy.

The relatively high saturated fat content of dairy foods was taken into account in the development of the HSR with the creation of three separate dairy HSR Categories: Category 1D dairy beverages; Category 2D dairy foods other than those in Category 1D or 3D; and Category 3D cheese. These other categories were scaled differently to ensure they obtained a high HSR, despite their saturated fat content. Scaling also ensures a broader range of values from 0.5 to 5.0 stars to ensure better differentiation between high fat/sugar and low fat/sugar products.

The footnote on page 6 of the Guide for Industry to the Health Star Rating Calculator states:

"Dairy foods was the one food category with a very narrow range of HSRs due to their derivation from a single food source (milk) and giving them a slightly wider range of star ratings allows for more informed consumer choice in this product range. The star ratings for dairy foods have been designed to support the ADG which include dairy foods (no added sugar) in their foundation diets. For example dairy products based on reduced fat milks are assigned a higher star rating than full fat milk counterparts and products with added sugar are assigned a lower star rating than those with no added sugar."

The result of this decision is that dairy products that contain larger amounts of fat and sugar receive lower HSRs than other dairy products. This is consistent with the ADG. However, this decision also results in some dairy products receiving an HSR that is lower than some non-dairy discretionary foods, which is inconsistent with the ADG classification of dairy products as "FFG" but consistent with the dietary guidance in both countries to limit foods high in saturated fat, sugar and sodium.

---

[10] Australian Bureau of Statistics, 2014, Australian Health Survey: Nutrition First Results - Foods and Nutrients, 2011-12, Fat, available at: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.007~2011-12~Main%20Features~Fat~707

[11] Australian Bureau of Statistics, 2016, Australian Health Survey: Consumption of Food Groups from the Australian Dietary Guidelines, 2011-12, available at: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/4364.0.55.007~2011-12~Main%20Features~Fat~707

[12] University of Otago and Ministry of Health. 2011, A Focus on Nutrition: Key findings of the 2008/09 New Zealand Adult Nutrition Survey, p. XXV, available at: https://www.health.govt.nz/system/files/documents/publications/a-focus-on-nutrition-v2.pdf

Some dairy products are scoring a lower HSR than some discretionary products

Table 1 provides a summary of dairy foods that are obtaining a HSR less than 3.0 stars. As above, this is due to a prior decision to increase the range of star ratings. These products represent less healthy versions of dairy products as they are higher in energy, saturated fat and sugar (yoghurts, flavoured milk) or salt (cheese). However they are still considered to be healthy FFG foods. Their mean HSR range from 1.8-2.1 and is lower than the mean HSR of discretionary foods in the TAG database which is 2.5 stars.

Table 1: Dairy foods obtaining a HSR less than 3.0 stars in the TAG database

Food or drink category	Mean HSR (range)	No. of products	Estimated total no. of products in this category[13]
Cheese	1.8 (0.5-2.5)	248	728 (cheeses – all types)
Yoghurts	1.8 (0.5-2.5)	109	559 (yoghurt and dairy desserts)
Flavoured milk drinks	2.1 (2.0-2.5)	24	191 (flavoured milk and milk alternatives, includes milk modifiers)
Custards	1.8 (0.5-2.5)	17	-

Options for Issue 1: Consideration given to saturated fat in dairy foods

A number of options are available to address this issue which are outlined in Table 2.

[13] Information obtained from FoodTrack™ food and drink database and matched to most closely corresponding food and drink category. Commonwealth Scientific and Industrial Research Organisation, 2016, FoodTrack™ - food and nutrient database, available at: https://www.csiro.au/en/Research/Health/CSIRO-diets/FoodTrack

Table 2: Options summary for addressing Issue 1: Consideration given to saturated fat in the HSR algorithm

Option number	Options	Benefits	Disadvantages
1.	Status quo	No change, provides certainty for industry. Keeps a broad range of star ratings across the dairy category. Those dairy foods that are receiving lower stars are not the best choices for dairy. According to the ADG, this range allows consumers to make a better choice within the category.	Dairy industry are not happy with status quo. Some discretionary foods receive a higher star rating than some FFG dairy.
2.	Make a policy decision to reduce the spread of HSR for dairy from 0.5-5.0 stars to 3.0-5.0 stars, and adjust the algorithm accordingly.	Dairy products are isolated to category 1D, 2D and 3D categories. This policy decision will impact these categories only.	Moves away from the previous decision to broaden the range of stars to ensure better differentiation – it will be more difficult to differentiate between high and low fat products. Rescaling work required. Not using evidence from dietary guidelines – inconsistent with dietary guidelines recommendation to consume mostly reduced fat options.
3.	Remove saturated fat points from the '1D and 2D' Categories	Dairy already has its own category so impact on other foods is limited.	Modelling work required to see impact on HSR of foods within the category – presumably the HSR would no longer differentiate between high and low (saturated) fat dairy products, which would not support the dietary guidelines. Breaks the HSR algorithm logic of allocating negative and positive points according to nutritional composition of the food.

Analysis of Options 1 and 2, Issue 1

Methods

The TAG database that includes product-nutrient data for 5,885 foods and drinks across 42 food categories according to the AGHE, was used for this analysis. HSR values for these products were calculated using industry-supplied data. Fibre and FVNL data were supplied voluntarily by industry and are therefore not available for all products. The data are not independently verified. Products in this database are classified as discretionary according to the AHS Discretionary Food List.[14]

Results

The TAG database shows that HSR Category 1D beverages receiving ≤ 3.0 stars are flavoured milks that typically contain between 1-4% saturated fat, providing a maximum of 4 baseline points. Higher fat options are allocated additional points for both the saturated fat content and the additional energy contribution of fat. These products are also higher in sugar than their unflavoured counterparts which would also increase their baseline points.

This same database shows that the HSR Category 2D foods receiving low star ratings are some custards, and yoghurts. Unripened cheeses may also be in this category, although these products may not meet the calcium threshold to be considered a 2D product. Custards and yoghurts that are scoring low stars tend to be the higher fat and higher sugar varieties of these products. The unripened cheeses tend to be higher in saturated fat, energy and sodium.

Discussion of Issue 1

This issue involves HSRAC assessing the relative importance of the HSR system to a) demarcate between FFG and discretionary foods and b) signal healthier choices within a product category.

- Option 1 allows the HSR to continue to effectively discriminate between high and low fat dairy foods on a range from 0.5 to 5.0 stars, based on their saturated fat (as well as sodium and sugar) content. However it does not ensure demarcation between FFG dairy foods and discretionary foods.
- Modelling is required to assess the impact of Option 2 or 3. However it is expected that these options will result in improved demarcation between FFG dairy and discretionary by increasing the star rating of all dairy foods so that they obtain a higher rating than discretionary foods. However this will also mean that the ability to differentiate between high and low fat dairy products will be reduced, which is not consistent with dietary guidelines.

[14] Australian Bureau of Statistics, 2014, Australian Health Survey Users' Guide – Discretionary Foods, available at: http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/4363.0.55.001Chapter65062011-13

Issue 2. Use of saturated fat rather than unsaturated fat in the HSR algorithm

Some respondents to the 5 year review were concerned that the inclusion of only saturated fat in the algorithm results in a lower HSR for some healthy, FFG foods that are high in total and healthy unsaturated fats but have some variation in saturated fat content. The concern is consumers will consider some foods to be healthier than others when the foods are considered equal in the Australian and New Zealand Guidelines. Examples provided were macadamia nuts receiving a lower HSR than almonds and olive oil (3.0-3.5 stars, 16% saturated fat) receiving a lower HSR than canola oil (4.0 stars, 7.6% saturated fat).

For fats and oils, this issue has been addressed separately in the Fats and Oils paper and presented to HSRAC where it was proposed to re-scale this category to increase the HSR of all healthy fats and oils, although this did not improve differentiation between oils. However the Fats and Oils paper did not consider nuts so nuts will be discussed as part of this paper.

In response to this issue, it is noted that:

Nuts are treated equally in the Australian and New Zealand Dietary Guidelines

Guideline 2 of the Australian Dietary Guidelines recommends Australians "enjoy a wide variety of nutritious foods from the five groups every day". Nuts are included in the lean meat and poultry, fish, eggs, tofu, nuts and seeds and legumes/beans group. Within this group, the following nuts and seeds are listed: almonds, pine nuts, walnut, macadamia, hazelnut, cashew, peanut, nut spreads, pumpkin seeds, sesame seeds, sunflower seeds, brazil nuts.

Similarly the Eating and Activity Guidelines for New Zealand Adults recommends New Zealand Adults "Enjoy a variety of nutritious foods every day including: some legumes*, nuts, seeds, fish and other seafood, eggs, poultry (e.g., chicken)".

However the HSR between nuts differs

As shown in Table 3, the HSR of nuts range between 3.5-5.0 stars. Five out of eight nuts reviewed receive a HSR of 5. The three nuts that do not receive 5 stars are macadamia nuts, brazil nuts and cashew nuts.

Saturated fat content is a key determinant of the HSR of nuts

Table 3 shows that variations in nutrient content of different nuts result in different HSR values. Although saturated fat rather than unsaturated fats are considered in the HSR algorithm, this is not the only driver for different HSR values. Saturated fat, unsaturated fat, protein and therefore energy content varies between nuts, resulting in different HSR for different nuts.

Table 3: Nutrient composition (per 100 g) and HSR of different nuts[15]

Per 100g	Energy (kJ)	Sat Fat (g)	Mono Fat (g)	Poly Fat (g)	Combined unsaturated fat (g)	Protein (g)	Fibre (g)	HSR
Macadamia nuts	3068	10.3	61.4	1.0	62.4	7.6	6.0	3.5
Almonds (with skin)	2503	3.7	35.87	12.8	48.5	19.5	8.8	5
Peanuts (with skin, raw)	2376	7.1	23.05	14.9	37.95	24.7	8.2	5
Peanuts without skin roasted	2661	7.9	25.79	16.7	42.49	25.1	6.2	5
Brazil nut	2886	14.8	21.81	29	50.81	14.4	8.5	4
Cashew	2437	8.4	31.14	7.5	38.64	17.0	5.9	4.5
Hazelnut	2689	2.7	48.78	7.2	55.98	14.8	10.4	5
Pistachio	2389	5.8	26.7	15.8	42.5	19.7	9.0	5

Nuts and seeds do not have their own HSR category

Nuts and seeds do not have their own category in the HSR system and are assessed as HSR Category 2 foods, the largest category of foods. To re-scale the category for nuts and seeds will require either a) a separate category to be created or b) consideration of the effect of re-scaling on the broader range of foods in Category 2.

Consumption of nuts in Australia and New Zealand

From the National Nutrition and Physical Activity Survey nuts and nut products are consumed by around 15.6% of people. They contribute to 1.5% of total energy for people aged 2 and over.[16] Data from 24 hour dietary recall in the 2008/2009 New Zealand Adult Nutrition Survey show 6.9% of the population consumed whole nuts. Among consumers of nuts the mean daily consumption of nuts was 40.3 g.[17]

[15]Food Standards Australia New Zealand, 2010, NUTTAB 2010 Online Searchable Database, available at: http://www.foodstandards.gov.au/science/monitoringnutrients/nutrientables/nuttab/Pages/default.aspx

[16] Australian Bureau of Statistics, 2016, Australian Health Survey: Consumption of Food Groups from the Australian Dietary Guidelines, 2011-12, Table 8.1, available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4364.0.55.0072011-12?OpenDocument

[17] Brown RC, Tey SL, Gray AR, et al., 2014, Patterns and predictors of nut consumption: results from the 2008/2009 New Zealand Adult Nutrition Survey, British Journal of Nutrition 112(12), 2028-2040, available at: https://doi.org/10.1017/S0007114514003158

Options for Issue 2: Use of saturated fat rather than unsaturated fat in the HSR algorithm

There are four options available to address this issue as outlined in Table 4.

Discussion of Issue 2

Nuts are already scoring highly in the HSR (above 3.5 stars) which identifies them as a FFG food. Options 2-4 may reduce the range of HSR between nuts so that they are treated more equally but this range is already narrow. Further reducing the range may not leverage sufficient benefit to warrant the significant changes to the HSR algorithm that would be required. These changes would add significant complexity to the system for a small range of products with limited consumer benefit. A communication strategy supporting consumers to choose FFG may provide more public health benefit than modifying the HSR algorithm.

Table 4: Options summary for addressing Issue 2: consideration given to nuts in the HSR algorithm

Option number	Option	Benefits	Disadvantages
1.	Status quo	No change required. Nuts rate ≥3.5 stars or above which is appropriate for FFG food. The range of HSR values is relatively narrow: 3.5-5.0 stars.	Nuts continue to receive a range of HSR.
2.	Policy decision for all unprocessed nuts to be able to show 5 stars	Impacts on limited number of products – most nuts receive 5 stars anyway. Products impacted are impacted in a positive way.	Unclear how partially processed (chopped/ roasted/ slivered, salted) nuts used in foods such as bars and meals should be assessed. They have similar nutrient composition but are also added to discretionary foods. This policy decision would need to be considered along with the option of a broader policy decision for fruits and vegetables set out in the unprocessed fruits and unprocessed vegetables paper. Does not account for serving size and high energy density of nuts compared to other FFG foods, in particular vegetables which have a low energy density. A serve of nuts is 30 g.
3.	Consider rescaling the algorithm to improve consistency in HSR for nuts	Improves alignment of HSR with ADG.	A new category will need to be created adding further complexity to the HSR system. Alignment of all nuts with ADG may still not be achieved.
4.	Change the algorithm to include unsaturated fats	May improve alignment of HSR and ADG – although unclear as protein, saturated fat and energy would continue to influence HSR.	Unsaturated fat is not included in the NIP, which moves away from one of the principles of the HSR system.

Issue 3. Weighting of saturated fat in the HSR algorithm

Many respondents wanted to take a single nutrient approach for some (discretionary) foods rather than consider the overall nutritional profile. They did not agree with the underlying premise of the HSR calculator, that the risk nutrient content of a product can be off-set by the positive nutrient content of a product. However no specific examples were provided.

In response to this, it is noted that:

The HSR system is designed to consider the combination of nutrients

One of the design principles used by the HSR Project Committee to develop the system is that: "*The HSR has been designed to take into account both risk and positive nutrients to provide an overall nutrition rating of a product. "The system should be based on elements that inform choice on balance by assessing both health-benefit and health-risk associated food components"*[18].

The HSR algorithm was derived from the NPSC

The HSR algorithm was derived from the NPSC. The NPSC was designed to cover 90% of foods in the category. The HSR algorithm extended the NPSC to cover 95% of foods in the category. Figure 1 shows that this extension of the saturated fat point scale is non-linear for category 1, 1D, 2 and 2D foods. The rationale for a non-linear extension was that foods in these categories (category 1 and 2) were not likely to contain 100% saturated fat.

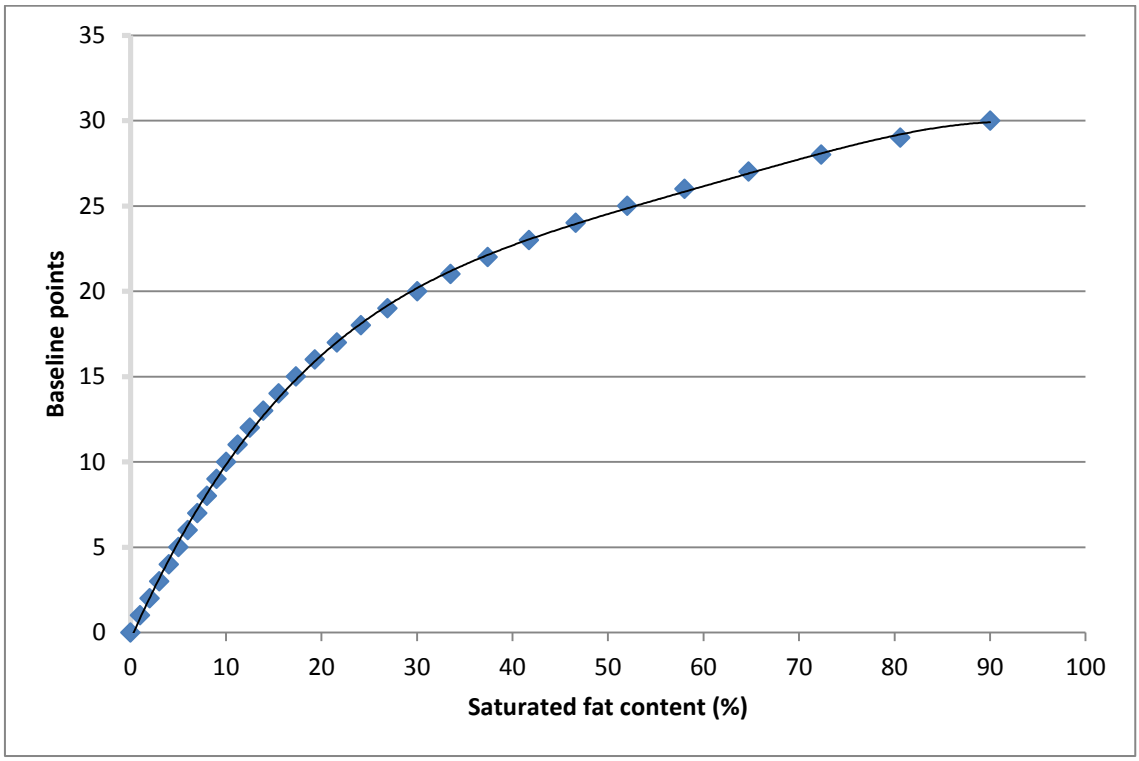

Figure 1: Baseline points tables (Saturated fat, for Category 1&2 Foods)

[18] Front of Pack Labelling Project Committee, 2011, Objectives and principles for the development of a front-of-pack labelling (FoPL) system, available at: http://foodregulation.gov.au/internet/fr/publishing.nsf/Content/frontofpackobjectives

The range of saturated fat cut-off levels in HSR is three to nine times that of the NPSC depending on the HSR Category

For category 1,1D, 2 and 2D products 0 - 30 points are allocated to a range of saturated fat levels of between ≤1 g - >90 g saturated fat per 100 g. For category 3 and 3D products between 0-30 points are allocated for ≤1 - >30 g saturated fat per 100 g. The NPSC allocates between 0-10 points for foods that contain ≤1 g fat to more than 10 g fat per 100 g.

In practice, 1.0 saturated fat baseline point is awarded for every 1% increase in saturated fat content, up to 10 points. After 10 points, the difference in saturated fat content for every baseline point increases.

There are very few foods at the upper cut-off level of 90%

A review of the saturated fat content of some known high saturated fat foods shows that there are limited foods in the market with saturated fat levels above 50% (see Table 5). It is assumed that the extension of the NPSC to cover 95% of saturated values in the market occurred before a decision was made to create new HSR Categories for fats and oils and cheeses. In other words, HSR Category 2 still uses a scale of 30 baseline saturated fat points for up to 90% saturated fat content despite high fat foods having been moved to HSR Category 3 (oils and spreads) and 3D (cheeses). The range of up to 90% no longer reflects what is available in the market for HSR Category 2.

Table 5: Saturated fat content of high fat foods[19]

Food	Sat fat amount (g/100 g)	HSR Category of food
Copha	85	3
Coconut	57	2
Butter	54	3
Palm oil	45	3
Cream (added fat)	36.8	2
Cream Cheese	34.7	2
Toppings (e.g. butterscotch)	33.1	2
Chocolate	29.8	2
Sour Cream	25.5	2
Cheddar cheese	17	3D
Pure Cream	23	2

[19] Food Standards Australia New Zealand, 2010, NUTTAB 2010 Online Searchable Database, available at: http://www.foodstandards.gov.au/science/monitoringnutrients/nutrientables/nuttab/Pages/default.aspx

Analysis of Issue 3

The TAG database includes product nutrient data for 5,885 foods and drinks across 42 food categories according to the AGHE. This data was provided by industry. From the TAG database the minimum and maximum saturated fat content of each food category can be determined (Table 6).

- FFG foods in the TAG database have a maximum level of saturated fat level of 36.8%. The small number of foods in HSR Categories 1, 1D, 2 and 2D containing levels of saturated fat above 40% provides scope for reducing the range of saturated fat points to better reflect saturated values in foods in the market. Baseline points could be reduced from 30 points for up to 90% saturated fat to 30 points for up to 30-40% saturated fat. This may improve the sensitivity to saturated fat.
- The minimum and maximum saturated fat content of Category 3 and 3D products, fats and oils and FFG dairy are shown at Table 7. Category 3 foods have a different points allocation and have therefore been excluded from further analysis.

Table 6: Minimum and maximum saturated fat content of different food groups in the TAG database

Product category	Min. Sat Fat (g/100g)	Max. Sat Fat (g/100g)	Impacted if rescale HSR algorithm?
FFG Cereals	0	8.4	No
FFG Dairy - beverages	0	6.2	No
FFG Dairy - yoghurt, soft cheese	0	17.9	Yes – high fat cheeses
FFG Fruit	0	2.0	No
FFG: Meat and alternatives	0	57.7	Yes
FFG Vegetables	0	6.8	No
Discretionary foods	0	36.8	Yes – cream and ice cream
Discretionary beverages, non-dairy	0	1.3	No

Table 7: Minimum and maximum saturated fat content of HSR Category 3 Foods

Product category	Minimum Sat Fat (g/100g)	Maximum Sat Fat (g/100g)
HSR Category 3D - cheese	1	31.3
HSR Category 3 - Fats, oils	4.2	93.0

Modifying the saturated fat points in the HSR Algorithm has minimal impact

However modifying the saturated fat scale to reduce the saturated fat range over which the 30 baseline points are applied from 90% to 30% has limited impact on the final HSR rating. Using the TAG database, only 6 food categories are impacted, with the impact being between -0.25 and -1.0 Star Points. Tables 8 and 9 show a summary of the changes in Star Points on FFG and discretionary foods. Further detail is outlined in Appendix 2.

The reason there is minimal impact is because the HSR algorithm operates using the NPSC algorithm up until 10% saturated fat levels. Most products in the food supply have a saturated fat content of <10%.

Table 8: Impact of modifying the HSR to apply 30 points to up to 30% saturated fat for FFG foods.

FFG product	Current Minimum Star Points	Current Maximum Star Points	New Minimum Star Points	New Maximum Star Points	Change
Coconut and coconut products	4	7	3	7	-0.5
Cheese unripened styles including cream and cottage	1	10	1	10	~ -0.5

Table 9: Impact of modifying the HSR to apply 30 points for up to 30% saturated fat – Discretionary Foods

Discretionary foods	Current Minimum Star Points	Current Maximum Star Points	New Minimum Star Points	New Maximum Star Points	Change
Cream – regular and increased fat	1	2	1	2	~ -1
Cream – sour	2	4	1	3	~ -1
Frozen Dairy Dessert	2	3	2	2	~ -1
Other milk or cream based desserts	1	2	1	2	~ 0

Key discretionary foods containing saturated fat are not impacted by this rescaling

Salty snacks have a mean saturated fat content of 7.5% for products scoring <3.0 stars and 2.6% for products containing 3.0 stars and above. In addition, muesli bars have a maximum saturated fat level of 6.9 g per 100 g. Therefore modifying the HSR algorithm will not impact on the HSR of these products.

Options for Issue 3: Weighting of saturated fat in the HSR algorithm

There are options available to address this issue as outlined in Table 10.

Table 10: Options summary for addressing issue 3: weighting of saturated fat in the HSR algorithm

Option number	Option	Benefits	Disadvantages
1.	Status quo	Consistency is maintained for the HSR algorithm.	Perceived outliers remain – although it is unclear what these specific products are.
2.	Change the saturated fat algorithm in the 0-10% saturated fat range for HSR Categories 1, 1D, 2 and 2D foods i.e. to decrease the % increase required per baseline point from the current 1% to 0.5%.	Takes into account the saturated fat content of most products in the market which is < 10%. Increases the relative weighting of saturated fat in the algorithm.	This will alter the underlying NPSC table and would need to be modelled to see if any change in HSR observed at a product level warranted this change. Preliminary work indicates that this will have only a minor impact on the HSR of food, yet would be a substantial modification to the HSR algorithm.
3.	Create a new sub-category for discretionary foods under HSR Category 2. Re-scale this category to move the HSR down and reduce the range by capping.	Provides a clear delineation for discretionary and FFG foods – may address the perceived outlier products.	Unclear if it will address the issue raised as the specific products perceived to be outliers are unknown. Creates a new category within the HSR system. Is policy based rather than objective i.e. is not based on nutrient composition. Depending on the model developed may not promote reformulation and healthier options within category.

Conclusion

Many disparate issues are considered in this paper, with a number of options considered. For Issues 1 and 2, the case for making changes to the HSR algorithm is not strong because of the effort involved with likely minimal benefit. Instead, a discussion on the policy approach to low HSR scoring dairy foods and the range of HSR values for nuts will be required. Issue 3 is more complex. Further work to see the impact of refinements to the saturated fat component of the HSR algorithm could be considered. However preliminary work indicates that this would only have a minimal impact on the final HSR and the NPSC algorithm would need to be changed to have a greater impact.

APPENDIX 1: Summary of relevant feedback from respondents to the Five Year Review

Key concerns raised:

- Respondents expressed concerns that the HSR algorithm does not distinguish between 'good' (unsaturated) and 'bad' (saturated) fats and therefore does not completely align with recommendations to "replace high fat foods which contain predominantly saturated fats with foods which contain predominantly polyunsaturated and monounsaturated fats."
    - The HSR algorithm penalises nuts for their saturated fat content and does not take into account the whole food matrix of nuts. For example: Macadamia nuts receive a lower HSR than almonds and this could give people the impression that one is healthier than the other when they are considered equal in the Guidelines.
    - Most healthier oils contain a balance of poly and mono-unsaturated fats, as well as saturated fats, and the current algorithm does not take into account the unsaturated fat content when scoring foods; for example olive oil receives a lower HSR than canola oil.
    - Some foods containing healthier fats, such as spreads and other foods containing a high percentage of oil (like mayonnaise) are also disadvantaged by the system, the result being that those lower in total/saturated fat rate higher.
- In the case of dairy foods, it has been suggested that the reason 'mostly' low or reduced fat products have been recommended in the ADG and NZEAG is because of their relatively high energy (kilojoule) content and the potential impact on overweight and obesity rates, rather than their saturated fat content. There is a concern that energy is therefore counted twice in the HSR algorithm for dairy products i.e. as saturated fat as well as kilojoule content, which results in a low HSR for high fat dairy foods.
    - Some foods from the FFG foods groups receive a lower HSR than heavily processed, discretionary foods or nutrition supplements which are not recommended as part of a healthy balanced diet. For example, Coles Greek style yoghurt with 1.5 stars or Woolworths light cheese and crackers snack with 1 star.
    - The footnote on page 6 of the Guide for Industry to the HSR Calculator states that "dairy foods was the one food category with a very narrow range of HSRs due to their derivation from a single food source (milk) and giving them a slightly wider range of star ratings allows for more informed consumer choices in this product range". One respondent noted that dairy foods are a FFG food group to be consumed every day and therefore consumers should not need a wide range of star ratings to make healthier choices within this category.

Recommended solutions provided:

- One respondent recommended that nuts should be able to use their unsaturated fat content to obtain modifying points and offset the impact of saturated fat in a similar way that high fat dairy products are able to use calcium to offset the impact of saturated fat.
- Respondents suggested that capping the HSR for products high in one of the negative nutrients (sugar, sodium and saturated fat) would better align with the ADG and further the aim of the HSR scheme to, "increase awareness of foods that, within the overall diet, may contribute positively or negatively to the risk factors of diet related chronic diseases".

- There were other suggestions that saturated fat should not be included as a negative nutrient in the HSR algorithm and instead, that trans fats should be added to the algorithm, along with oxidised or hydrolysed vegetable or seed oils, for their role in causing inflammations and chronic disease.
- Some respondents proposed that edible oils be made exempt from the HSR system or that the methodology to assess edible oils be re-evaluated.
- With regard to nuts and indeed legumes, fruits and vegetables, it was suggested that these foods should be given an automatic five star rating since these are foods the ADG recommends Australians eat more of to reduce chronic disease.
- Another respondent recommended a consumer education campaign may clarify some of the issues around oils such as healthy fats, healthier choices within the oils category and types of fats.

APPENDIX 2: Saturated fat content by HSR category

The table below shows the saturated fat content by HSR category from the TAG database.

- The NPSC algorithm covers more than 75% of foods that fall within the 10% sat fat range (the purple categories). The NPSC awards 1.0 baseline point for every 1% increase in saturated fat up to 10%. Any change to improve the sensitivity of saturated fat in these foods will involve a change to the underlying NPSC algorithm.
- 75% of cheeses and around 70-80% of fats and oils fall into the 30% saturated fat range (the orange categories). The HSC algorithm starts at levels above 10% saturated fat and awards 1.0 baseline point for varying increases in saturated fat above 1%. Any change to improve the sensitivity of saturated fat at levels above 20% will only impact on cheeses and fats and oils.

Statistic	Discretionary Non-dairy beverages	Discretionary	FFG Grains	FFG Dairy beverages	FFG Dairy cheese	FFG Dairy – yoghurt soft cheese	Fats & oils	FFG Fruit	FFG meat, chicken, eggs, fish and alternatives	FFG Veg
No. of products	363	2200	711	551	443	497	94	157	508	361
Minimum saturated fat content	0.000	0.000	0.000	0.000	1.000	0.000	4.200	0.000	0.000	0.000
Maximum saturated fat content	1.300	36.800	8.400	6.200	31.300	17.900	93.00	2.000	57.700	6.800
1st Quartile	0.000	0.400	0.300	0.600	16.100	1.100	14.32	0.000	0.500	0.000
Median	0.000	1.700	0.700	1.100	19.200	1.700	17.20	0.000	1.000	0.100
3rd Quartile	0.000	7.100	1.200	1.600	**21.400**	3.200	**37.47**	0.100	2.700	0.300
Mean	0.018	4.583	0.998	1.201	18.725	2.283	26.69	0.192	2.434	0.372
Variance (n-1)	0.010	36.964	1.208	0.635	17.402	4.637	356.3	0.169	15.155	0.631
Standard deviation (n-1)	0.099	6.080	1.099	0.797	4.172	2.153	18.87	0.411	3.893	0.794
% of category covered by original NPSC point scale for saturated fat	100%	~80%	100%	100%	~70%?	~90%?	60-70%	100%	~95%	100%
% category covered by HSR extension of point scale for saturated fat	0%	0%	0%	0%	~30%	~10%	~30-40%	0%	0%	0%