



REVIEW REPORT

TRANS FATTY ACIDS IN THE NEW ZEALAND AND AUSTRALIAN FOOD SUPPLY

JULY 2009

Executive Summary

In 2006, at the request of the Ministerial Council, Food Standards Australia New Zealand (FSANZ) undertook a review of trans fatty acids (TFA) in the New Zealand and Australian food supply and considered the potential risk posed by TFA dietary intakes. At that time, FSANZ recommended that non-regulatory approaches to reducing the level of TFA in the food supply would be the most appropriate action and that a review of the outcome of non-regulatory measures should be undertaken in 2009 in order to further assess the need to consider regulatory action. The findings and recommendations of the Review Report: *Trans Fatty Acids in the New Zealand and Australian Food Supply* ('the 2007 Review Report') were endorsed by the Ministerial Council in May 2007.

The 2009 review of TFA focuses on the following key elements:

- A revised dietary intake assessment of TFA in the New Zealand and Australian populations.
- A revised risk assessment in relation to TFA intakes and health effects, incorporating a review of the literature published since 2006.
- Outcomes of voluntary initiatives undertaken by quick service restaurant (QSR) industries in New Zealand and Australia to reduce TFA levels in foods.

Dietary Intake Assessment

FSANZ has estimated dietary intakes of TFA using the most recent national food consumption data and the results of a binational survey on TFA concentrations in Australian and New Zealand foods. In 2008-09, intakes of TFA of manufactured origin have declined in both Australia and New Zealand compared to previous estimates.

Average total TFA intakes from both ruminant and manufactured sources in Australia and New Zealand are below the World Health Organization (WHO) population goal of contributing less than 1% to total energy intake¹. However, intakes from TFA and saturated fatty acids (SFA) combined exceed the NHMRC guideline of 8-10% of total energy and would still do so even if all TFA were removed from foods, due to high intakes of SFA.

Risk Assessment – TFA and Health Effects

FSANZ has updated its earlier review of scientific literature regarding the link between TFA intake and adverse health outcomes and concludes there is a well-established relationship between intake of TFA and increasing risk of cardiovascular disease, however, the relationship between TFA intake and other diseases is less well established.

The evidence to date does not allow for a clear distinction to be made between the effects of naturally occurring (ruminant) and manufactured TFA. And, whilst removing TFAs is desirable, care is warranted when replacing TFA in manufacturing as TFA substitutes may not necessarily have more favourable effects on CHD risk factors.

Furthermore, it is not possible to estimate the true extent of disease risk reduction that would occur in Australia and New Zealand if the TFA ingestion in the populations was reduced below the already low intakes.

¹ The WHO in 2009 revised its recommendation on TFA intakes, from advising that populations should have TFA intakes below 1% of total energy on average, to advising that the great majority of the population should have TFA intakes below 1% of total energy.

Voluntary Industry Initiatives – Australia and New Zealand

As part of this review, in January 2009, FSANZ facilitated a follow-up survey of QSR Roundtable respondents to report on the progress of voluntary measures to reduce TFA in their products. There were 13 (out of the original 16) Australian QSR Roundtable respondents to this survey.

The survey indicates that the Australian QSR industry has been proactive in reducing the levels of TFA in their products, although some are more advanced than others. Several manufacturers that have reduced TFA to minimum levels (e.g. less than 0.5 g trans fat /100 g food), are now focussing on reducing saturated fat levels. For some, the higher cost of low TFA oils and technological issues are impediments to the attainment of low TFA products.

A similar survey in New Zealand with 19 QSR respondents was facilitated by the New Zealand Food Safety Authority (NZFSA). The survey report indicates that the QSRs and their stakeholders have made positive changes resulting in lower TFA products. It was also noted that the higher price of lower TFA products appeared to be the main barrier to change, particularly during the current economic climate.

The New Zealand QSR survey further noted the importance of national collaborations in educating and encouraging QSR sector stakeholders about healthy frying practices and appropriate oil choices and that these initiatives should continue to be supported.

Conclusion and Recommendations

FSANZ recommends that the *status quo* be retained. This recommendation is based on:

- The voluntary reduction in TFA intakes from manufactured sources in both Australia and New Zealand compared to estimates undertaken pre-2007;
- Evidence of the effectiveness of the current non-regulatory approach:
 - Intakes of TFA of manufactured origin have declined in the Australian and New Zealand population by around 25-40% since 2007.
 - This decline in manufactured TFA intake is equivalent to a population average decline of 0.1% of total energy intake. Mean total TFA intake from both ruminant and manufactured sources is now estimated to be 0.5-0.6% of total dietary energy. This indicates that Australia and New Zealand continue to meet the WHO population goal for TFA intake.
- Whilst the relationship between increasing intake of TFA and coronary heart disease is well established, no additional evidence has come to light that alters the risk assessment conclusions in the 2007 Review Report; and
- The effectiveness of current industry initiatives in reducing TFA in the food supply. Evidence of this is provided by the outcomes of the Implementation Sub Committee analytical survey and the follow-up survey responses from the QSR sector in Australia and New Zealand.

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1. Purpose

To provide the Ministerial Council with a review report on the outcomes of non-regulatory measures to reduce TFA in the New Zealand and Australian food supply.

2. Background

2.1 2007 Review Report

In 2006, at the request of the Ministerial Council, FSANZ undertook a review of TFA in the New Zealand and Australian food supply and the potential risk posed by TFA dietary intakes. The report, *Trans Fatty Acids in the New Zealand and Australian Food Supply* ('the 2007 Review Report'), was provided to the Ministerial Council in May 2007. The key risk assessment findings from this review were as follows:

- The contribution of TFA to total energy intake in Australia and New Zealand averaged 0.6% and 0.7%, respectively. These intakes were below the WHO goal of TFA contributing less than 1% to total energy intake and comparable to, or lower than those reported in other developed countries.
- Naturally-occurring TFA derived from animal products contributed approximately half of the TFA intake.
- While there is evidence that the adverse effects on blood cholesterol caused by TFA are greater than those posed by saturated fatty acids, the TFA intakes of Australians and New Zealanders are much lower than the intakes of saturated fatty acids.
- Saturated fat intakes are the more important concern for risk of heart disease.

The 2007 Review Report also identified a number of current and past initiatives to reduce the levels of TFA in the food supply and that the range of measures being implemented by industry was expected to further reduce the level of TFA in the food supply.

In view of these findings, FSANZ recommended the following future actions:

- Support the Australian National Collaboration on Trans Fats in its initiative directed at expanding and strengthening existing non-regulatory risk management approaches that can further reduce the presence of manufactured TFA in the food supply and reduce dietary intakes of TFA.
- Support related initiatives aimed at reducing the presence or intakes of TFA in the food supply in New Zealand.
- Monitor the effectiveness of non-regulatory measures in reducing the level of TFA in the Australia and New Zealand food supply.
- In early 2009, commence a review of the outcome of non-regulatory measures to reduce TFA in the food supply and assess the need to consider regulatory action commensurate with the ongoing risk posed by TFA intakes, such as additional labelling or compositional requirements.

In May 2007, the Ministerial Council endorsed the findings and recommendations in the Review Report.

2.2 Voluntary Initiatives to Reduce TFA in the Food Supply

2.2.1 *Australia New Zealand Collaboration on Trans Fats*

The Australia New Zealand Collaboration on Trans Fats was established in October 2006 to

support and broaden existing initiatives to manage TFA. It includes representatives from the National Heart Foundation of Australia (also representing New Zealand) (NHF), the Dietitians Association of Australia (DAA), the Australian Food and Grocery Council (AFGC), the New Zealand Food and Grocery Council (NZFGC), the New Zealand Food Safety Authority (NZFSA) and FSANZ.

The Collaboration has worked to expand voluntary industry initiatives to reduce manufactured TFA in foods and to promote reduced dietary intakes of TFA through education and communication initiatives.

2.2.1 Roundtables on Trans Fats in Quick Service Restaurants

In March 2007, representatives of the QSR sector in Australia, the Collaboration and the Australian Government established a Roundtable on Trans Fats in the Quick Service Restaurant Industry. The Roundtable included the following representatives of the QSR industry: Michel's Patisserie, Domino's Pizza, Red Rooster, La Porchetta, Baking Industry Association, Hungry Jack's, KFC and Pizza Hut, Krispy Kreme, Coffee Club, Oporto, McDonald's, Eagle Boys Pizza and Subway. The broad aim of the Roundtable was to minimise the use of TFA in quick service meals, while not adversely impacting saturated fatty acid content.

In 2007, Roundtable members were invited to respond to a survey seeking information on ongoing plans and strategies to reduce the levels of TFA and saturated fatty acids in their foods. The outcomes of this survey were presented at a meeting of Roundtable participants in September 2007. A follow-up survey was sent to Roundtable members in January 2009 and the outcomes of this survey are discussed in section 3.2.3.1 and Attachment 3 of this report.

In August 2007, a similar QSR Roundtable was established in New Zealand by the New Zealand Food Safety Authority (NZFSA) as part of a management strategy to monitor TFA in the New Zealand food supply. An initial questionnaire was circulated to QSR members in September 2007 which sought information on their plans to reduce TFA in the food supply. A follow up questionnaire was circulated in March 2009. The results of this survey are discussed in section 3.2.3.2 and presented at Attachment 4 of this report.

3. 2009 Review of TFA

3.1 Introduction

The 2009 review of TFA has been undertaken to address the 2007 Review Report recommendation: to review the outcome of non-regulatory measures to reduce TFA in the food supply and to assess the need to consider regulatory action.

The 2007 Review Report provided detailed information on the chemical and physical properties of TFA, consumer research on TFA and international risk management approaches to addressing the issue of TFA in the food supply. This information has not been repeated in the 2009 review of TFA. The 2009 review focuses on the following key elements:

- A revised dietary intake assessment of TFA in the New Zealand and Australian populations.
- A revised risk assessment in relation to TFA intakes and health effects, incorporating a review of the literature published since 2006.
- Outcomes of voluntary initiatives undertaken by QSR industries in New Zealand and

Australia to reduce TFA levels in foods.

At the 1 May 2009 Ministerial Council meeting, Ministers were provided with a progress report on the various elements of the current review. At that time, only the revised risk assessment (incorporating the 2009 literature review) and the outcomes of the Australian QSR survey report were complete. Since the May 2009 meeting, the dietary intake assessment has been completed (Attachment 1), a revised risk assessment has been undertaken (Attachment 2), and the results from a New Zealand QSR survey have become available (Attachment 4). In addition, some minor amendments have been made to the Australian QSR report incorporating an additional survey response and some suggestions to improve the readability of the report (Attachment 3). The updated 2009 literature review was provided for the May 2009 meeting and is not included again.

3.2 Summary of Key Findings

3.2.1 Dietary Intake Assessment

The dietary modelling techniques used in the 2009 dietary intake assessment have enabled a more accurate estimate of TFA intakes to be generated than those used in the previous FSANZ assessment, in 2006.

This assessment found that intakes of manufactured TFA in the Australian and New Zealand population have declined by around 25-45%, since pre-2007. In 2009, the mean manufactured TFA intake is estimated at 0.4 g/day or less for Australians and 0.6 g/day or less for New Zealanders. The higher intake estimate for New Zealand largely reflects some differences in TFA levels in edible oil products.

This reduction of 25-45% in intake of manufactured TFA reflects changes in industry practice to reduce TFA concentrations in foods manufactured in New Zealand and Australia, illustrated through the findings of an analytical survey coordinated by the NSW Food Authority, with the assistance of the WA and SA Health Departments and the New Zealand Food Safety Authority (the 'ISC Survey').

When expressed in terms of total dietary energy intake, the decline in manufactured TFA intake is equivalent to a population average decline of 0.1% of total energy intake. Mean total TFA intake from both ruminant and manufactured sources is now estimated to be 0.5-0.6% of total dietary energy, with more than 90% of Australians and more than 85% of New Zealanders having TFA intakes below 1% of total energy intake. These figures indicate that Australia and New Zealand continue to meet the WHO population goal for TFA intake¹.

For the small proportion of Australians whose total TFA intake is above 1% of total dietary energy, pastry products, sausages and luncheon meats and creamy style pasta dishes contribute disproportionately to their high TFA intakes. In New Zealand, for consumers whose total TFA intake exceeds 1% of energy, pastry products and creamy style pasta dishes, as well as cheese, popcorn, doughnuts and take away style fish products, make a disproportionate contribution to TFA intake. There was no evidence of average daily manufactured TFA intakes exceeding 5 grams, as has been reported for some countries.

Based on available data, the reductions in manufactured TFA intake found in this study have not been accompanied by increases in saturated fatty acid intake. Mean saturated fatty acid intake in Australia remained steady at around 29-32 g/day calculated using both pre- and post-2007 concentration data. This suggests manufacturers have not replaced fats and oils high in TFA with vegetable fats that are high in saturated fatty acids; a strategy that would not be desirable given that saturated fatty acid intakes in Australia and New Zealand are already higher than recommended.

However, the study found that for the Australian and New Zealand population, intakes from TFA and saturated fatty acid combined are 14-16% of total energy, which exceeds the NHMRC guideline of 8-10% of total energy. Even if all TFA were removed from foods, intake of saturated fatty acid and TFA would still exceed the NHMRC guideline level.

The dietary intake assessment report is at Attachment 1.

3.2.2 Risk Assessment – TFA Intakes and Health Effects

Based on the information available in 2006 and relevant new information published since, the most consistent and robust evidence linking TFA and risk of disease relates to its adverse effects on blood lipids. TFA appear to raise LDL- and lower HDL-cholesterol concentrations, a change associated with an increased risk of cardiovascular disease. Several cohort studies also show a direct association with TFA intake and risk of cardiovascular disease. Other TFA and disease relationships are less well established and require further research before they can be accepted or refuted.

The evidence to date does not allow for a clear distinction to be made between the effects of ruminant and manufactured TFA.

There is compelling evidence that the adverse effect of TFA on blood lipids is greater than that of SFA when compared on an equal energy basis. However, care is warranted when replacing TFA in manufacturing, as TFA substitutes may not necessarily have more favourable effects on CHD risk factors than what they are replacing.

Due to uncertainty regarding the effect of the blood lipid dose-response effect at low levels of TFA intake, and because associations with CHD incidence are unknown at low intakes, it is not possible to estimate the true extent of disease risk reduction that would occur in Australia and New Zealand if the TFA ingestion in the populations was reduced below already low intakes. Nevertheless, there may be a health benefit if TFA intakes in Australia and New Zealand continue to decrease.

The risk assessment report is at Attachment 2.

3.2.3 Voluntary Industry Initiatives

3.2.3.1 Australian QSR Sector

In January 2009, FSANZ facilitated a follow-up survey on the progress of non-regulatory measures to reduce TFA in the Australian QSR sector. Surveys were sent out to 16 QSR participants in the Roundtable, and to the six member organisations of the Collaboration for their information and response if they wished to do so.

Of the 16 QSR members surveyed, 12 initial responses were received. A further response was received after completion of the progress report to the May 2009 Ministerial Council meeting, which has been included in the revised report at Attachment 3. One response was received from a Collaboration member.

The survey indicates that the QSR industry has been proactive in reducing the levels of TFA in their products. Some companies have had TFA reduction plans in place for three to four years while others have implemented plans more recently. From the information provided there appears to be some quite dramatic reductions of 50-90% in the levels of TFA in certain ingredients and products. Several manufacturers that have reduced TFA to minimum levels (e.g. less than 0.5 g trans fat /100 g food), are now focussing on reducing saturated fat

levels.

The main strategies employed by the QSR industry to reduce TFA levels in foods appear to be through eliminating or limiting the use of hydrogenated fats or oils in food production processes, substituting high TFA oils with new blends containing very low levels of TFA, using oven-baking rather than deep frying techniques, and increasing education and awareness about ways that manufacturers can reduce TFA in their products.

The higher cost of low TFA oils was seen as an impediment by some companies to the attainment of low TFA products. Technological challenges such as maintaining freshness, texture, aroma and taste were also noted as an issue.

3.2.3.2 New Zealand QSR Sector

In March 2009, NZFSA facilitated a follow-up survey on the progress of non-regulatory measures to reduce TFA in the New Zealand QSR sector. Twenty eight QSR stakeholders were invited to participate in the survey, as well as two New Zealand participants on the Australia New Zealand Collaboration on Trans Fats. Nineteen responses were received.

The survey report indicates that the QSRs and their stakeholders (relevant industry association groups, and suppliers of edible fat-containing products such as oils and chips) have made positive changes and continue to work towards reducing TFA levels in their food supply chain. Some are more advanced in doing this than others. Since the initial questionnaire was circulated in 2007, a number of QSRs reported significant changes to their frying mediums and fats used in bakery products, resulting in lower TFA products.

The survey report also highlighted that during times of economic downturn, New Zealand may see voluntary initiatives, such as TFA plans, not being prioritised, due to higher costs associated with the use of lower TFA products. For this reason, the QSR sector may need to be supported and encouraged to continue implementing and monitoring TFAs plans; this can be achieved by collaborative support and by QSRs working together to ensure demand and therefore prices are kept down on healthier product lines.

National collaborations such as The Chip Group and the Food Industry Group (FIG) have played an important role in education of QSR sector stakeholders and continue to implement additional initiatives that will further influence the TFA content and overall nutritional content of the food supply. These educational initiatives not only encourage alternatives to frying and healthy frying practices but also aim to educate QSR sector stakeholders on the most appropriate oil choices for improved nutritional profile of their products. These initiatives should continue to be supported.

The New Zealand QSR sector report is at Attachment 4.

4. Conclusion and Recommendations

Based on the findings of this review, FSANZ recommends that the *status quo* be retained. This recommendation is based on:

- The voluntary reduction in TFA intakes from manufactured sources in both Australia and New Zealand compared to estimates undertaken pre-2007;
- Evidence of the effectiveness of the current non-regulatory approach:
 - Intakes of TFA of manufactured origin have declined in the Australian and New Zealand population by around 25-40% since 2007.
 - This decline in manufactured TFA intake is equivalent to a population average

decline of 0.1% of total energy intake. Mean total TFA intake from both ruminant and manufactured sources is now estimated to be 0.5-0.6% of total dietary energy. This indicates that Australia and New Zealand continue to meet the WHO population goal for TFA intake¹.

- Only a small proportion of Australians (less than 10%) and New Zealanders (less than 15%) exceed the WHO population goal for TFA intakes. Foods from ruminant animals (meat and dairy products), fried products and pastry products are the major contributors to high TFA intakes in these population groups.
- Whilst the relationship between increasing intake of TFA and coronary heart disease is well established, no additional evidence has come to light that would alter the risk assessment conclusions in the 2007 Review Report; and
- The effectiveness of current industry initiatives in reducing TFA in the food supply. Evidence of this is provided by the outcomes of the ISC analytical survey and the follow-up survey responses from the QSR sector in Australia and New Zealand.

However, of greater concern is that intakes from TFA and SFA combined are 14-16% of total energy, which exceeds the NHMRC guideline of 8-10% of total energy. Even if all TFA were removed from foods, intake of SFA and TFA would still exceed the NHMRC guideline level due to the high intakes of SFA.

Attachments

Attachment 1: Intakes of Trans Fatty Acids in New Zealand and Australia 2009 Assessment

Attachment 2: Risk Assessment Report: *Trans* Fatty Acids in the New Zealand and Australian Food Supply Update 2009

Attachment 3: Report on Survey of Progress of Voluntary Initiatives to Reduce Trans Fatty Acids in the Australian Food Supply

Attachment 4: Report on Quick Service Restaurants Plans and Progress Towards Reducing Trans Fatty Acids in the New Zealand Food Supply