**Risk Assessment Studies**

**Report No. 38**

**Nutrients in Food**

# Trans Fatty Acids in Local Foods (III)

July 2009
Centre for Food Safety
Food and Environmental Hygiene Department
The Government of the Hong Kong Special Administrative Region

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## Executive Summary

The Centre for Food Safety (CFS) has conducted a third study to examine the trans fatty acids (TFA) content of local foods. On the basis of the fat content in foods measured in this study and two previous studies, advice to the trade and the public was formulated.

Internationally and locally, there is increasing concern in TFA level in foods. Similar to saturated fatty acids (SFA), TFA increase the risk of coronary heart disease by elevating the level of low density lipoprotein cholesterol. In addition, TFA also reduce high density lipoprotein cholesterol. The World Health Organization (WHO) and the Food and Agriculture Organization (FAO) of the United Nations recommend that daily energy intake from TFA or SFA should be less than 1% or 10% of total energy intake, respectively.

### The Study

Sampling was carried out from August 2006 to November 2008 to include foods limitedly covered or not covered in the previous 2 studies but were of public health concern, or foods commonly consumed in Hong Kong that may contain high TFA. The levels of TFA were analysed in 59 composite items, in 6 groups, including (i) snacks, (ii) bakery products, (iii) other ready-to-eat foods, (iv) dairy/dairy-like products, (v) oils/fats, and (vi) beverages. Laboratory analyses for TFA, energy and nine other nutrients were conducted by the Food Research Laboratory of the CFS.

**Results**

The results showed that the TFA content of these foods varied greatly. On a per 100 grams (g) basis, about 70% (41/59) of foods had more than 0.3g of TFA, whereas 24% had more than 0.3g but not more than 1.0g, 5% had more than 1.0g but not more than 5.0g, and 1% had more than 5.0g. The highest TFA (mean [range]) content was in oils/fats (2.3g [0.11-11g]), followed by bakery products (0.48g [0.12-0.98g]), dairy/dairy-like products (0.30g [0.028-0.78g]), other ready-to-eat foods (0.13g [0.022-0.50g]), snacks (0.073g [0.013-0.23g]), and beverages (0.020g [0-0.069g]).

The study revealed that a hard margarine composite sample had high TFA level (11g/100g) and the 4 types of liquid vegetable oils tested had TFA ranged from 0.11g to 0.97g/100g. A tablespoon (14g) of the hard margarine would have contained 1.5g of TFA. Thus for an adult with a daily energy intake of 2000 kilocalories, this would contribute to 68% of the recommended daily TFA intake limit.

Consistent with the other two studies, on a per unit basis, foods with puff pastry and those with dairy or cheese were high in TFA, some were also high in SFA. By consuming 1 to 3 units of these items, one would have exceeded WHO/FAO's recommendations on daily TFA and SFA intake limits.

**Conclusion and Recommendations**

TFA are present in varying amounts in local foods ranging from 0g to 11g/100g. On a per 100g basis, about 70% of foods tested had not more than 0.3g of TFA, whereas 24% had more than 0.3g but not more than 1.0g, 5% had more than 1.0g but not more than 5.0g, and 1% had more than 5.0g. Oil/fats (especially

margarines) and bakery products (especially puff pastry products) generally had high TFA content, and all liquid vegetable oils tested contained TFA. Besides TFA, some dairy or cheese-containing foods also had high SFA content per unit.

**Advice to consumers**

1. Maintain a balanced diet; avoid excessive intake of certain types of food.
2. Choose foods based on their overall nutrient profile, including the amounts of TFA and SFA.
3. Make reference to the information in the food label (including the ingredient list and the nutrition label) and the available food composition databases to make healthier food choices.
4. Consume foods containing high TFA infrequently, such as foods with puff pastry.
5. Reduce the use of oils/fats when preparing foods. If necessary, use liquid vegetable oils rather than animal fats. Use margarines and butter sparingly.

**Advice to the trade**

1. Modify the manufacturing process to lower TFA content in foods and oils/fats.
2. Declare, for prepackaged foods, the amount of TFA content on the nutrition label to enable consumers make an informed choice.
3. Refer to the "Trade Guidelines on Reducing Trans Fat in Food" (http://www.cfs.gov.hk/english/food_leg/files/trans-fats-guide-e.pdf) for alternatives of providing healthier food choices to consumers.

# Trans Fatty Acids in Local Foods (III)

## OBJECTIVES

This study aims to examine the nutrient contents of some common local foods, especially their trans fatty acids (TFA) content. On the basis of the fat content in foods measured in this study and two previous studies, advice to the trade and the public is formulated.

## BACKGROUND

2. TFA are unsaturated fats with at least a double bond in *trans* configuration. TFA in foods originate from three main sources: (i) bacterial transformation of unsaturated fatty acids in the stomach of ruminants (e.g. cattle, sheep, goats); (ii) industrial hydrogenation (used to produce semi-solid and solid fats) and deodorisation (a necessary step in refining) of vegetable oils high in polyunsaturated fatty acids (PUFA); and (iii) during heating and frying of oils at extreme high temperatures.[1]

3. Bacteria in the stomach of ruminants biohydrogenate some of the ingested unsaturated fats to TFA. Therefore, TFA can present naturally in milk, cheese, butter, meat/meat products of ruminants, etc.. Industrial TFA is used widely in the food industry for its low cost compared with other fats, its ability to prolong the shelf-life of products, and its desirable characteristics imparted to the food. Foods containing industrial TFA are baked products (e.g. cakes, biscuits, pies, bread), snacks (e.g. deep

fried food, candy), salad dressings, margarines/shortenings, etc..

4. The World Health Organization (WHO) predicted that coronary heart disease (CHD) will remain as the 3rd killer of the world in the coming decades.[2] In Hong Kong, the latest data from the Department of Health shows that CHD has been the 2nd killer since 2001.[3] Intake of excessive TFA would increase the risk of CHD and its effect is considered to be even greater than saturated fatty acids (SFA). TFA can increase the risk of CHD by not only raising the level of low density lipoprotein (LDL) cholesterol (the harmful cholesterol), but also reducing the high density lipoprotein (HDL) cholesterol (the beneficial cholesterol).

5. In recent years, there is increasing concern on TFA content in foods both internationally and locally. Internationally, the intake and potential adverse health effects of TFA in Western countries have received considerable attention,[1,4,5,6] with some introduced legislation to regulate TFA level in food so as to lower TFA consumption in these populations.[7,8,9] Locally, an amendment regulation on the nutrition labelling of TFA level on prepackaged foods will take effect on 1 July 2010.[10] The amendment regulation requires prepackaged foods to declare TFA level on the nutrition label. However, products with not more than 0.3 grams (g) of TFA per 100g or 100 millilitres (ml) of food can have the value rounded to “0”, and those meeting the stipulated conditions can be claimed as “TFA free”.

6. In view of growing evidence on the adverse health effects of TFA intake and increasing concern of TFA presence in food, conjointly, the Centre for Food Safety (CFS) and the Consumer Council (CC) have conducted two studies to assess the TFA content in local prepackaged and non-prepackaged foods.[11,12] The first study focussed

on bakery products, deep fried foods, and margarine/margarine-like spreads. The second study covered a wider range of food products including bakery products, ready-to-eat savouries, instant noodles, prepackaged soups, milk products and analogues, spreads, and chocolate. Among the 80 individual samples in the first study and 85 individual samples in the second one, the majority had TFA not more than 0.3g/100g,. Nevertheless, some products contained relatively high levels of TFA such as a cream-filled bread with shredded coconut sample, a doughnut sample, and a Chinese pastry sample.

7. However, many foods probably containing TFA level were not covered in both studies (e.g. traditional Chinese candies, popcorns, vegetable oils). Besides, more representative samples, such as using composite samples of a food item, are needed to enable the results to be generalised to a food item. Thus, a systematic analysis on TFA content with representative sample of food is required to provide a more complete picture of TFA content in local foods.

## SCOPE OF STUDY

8. The current study covered local foods meeting at least one of these criteria: (i) foods that were limitedly covered or not covered in the previous 2 studies; and (ii) foods commonly consumed in Hong Kong that may contain high TFA. A total of 59 items in 6 groups were sampled for nutrient analysis (Annex I).

## METHODS

### Sampling

9. The food samples were purchased from August 2006 to November 2008. For

each food item, unless stated otherwise, 10 samples were collected from food premises and supermarkets in different districts in Hong Kong, resulting in a total of 549 individual items.

**Laboratory Analysis**

10. For each food item, the 10 samples were paired and formed 5 composite samples for nutrient analysis by the Food Research Laboratory (FRL) of CFS to determine the TFA content. Besides, energy and the contents of 9 other nutrients, namely protein, available carbohydrate, total fat, SFA, cholesterol, sugars, dietary fibre, calcium and sodium were also analysed. All tests were conducted using single-laboratory validated methods based on international standards. A brief description of the test methods is shown in Annex II.

**Data Analysis**

11. The average result of the 5 composite samples, unless stated otherwise, was presented as the mean energy and nutrient content of each food item in the report. For each nutrient, the mean value was rounded to the same decimal place as the limit of detection (LOD), then to 2 significant figures. If the level of nutrient was below LOD, it was reported as “0”. If it was too low for reliable reporting (i.e., between LOD and the limit of quantitation (LOQ)), the term “trace” was used (Annex III).

12. The TFA content of various foods was presented in a per 100g basis, unless otherwise specified. Results for oils, dairy/dairy-like products and beverages were also reported in a per 100g basis, which can be converted to per 100ml basing on their density (g/ml) measured by FRL.

## RESULTS AND DISCUSSIONS

13. The value of TFA, energy and other nutrients per 100g of the 59 food items are presented in Annex IV. The results showed that TFA present in almost all foods except for “Cendol” icy drink (Regular) and Tri-colour icy drink (Regular), with about 70% (41/59) products had TFA not more than 0.3g/100g, whereas 24% had more than 0.3g but not more than 1.0g, 5% had more than 1.0g but not more than 5.0g, and 1% had more than 5.0g.. The percentage was similar to the findings of the previous studies. The number of composite food items studied in the 6 food groups and the mean [range] of TFA value in a per 100g basis are shown in Table 1.

**Table 1. The mean [range] TFA content per 100g.**

| Food groups | No. of composite food items | Mean [Range] (g) |
|---|---|---|
| Oils/fats | 9 | 2.3 [0.11-11] |
| Bakery products | 10 | 0.48 [0.12-0.98] |
| Dairy/dairy-like products | 3 | 0.30 [0.028-0.78] |
| Other ready-to-eat foods | 23 | 0.13 [0.022-0.50] |
| *Fast food* | *13* | *0.17 [0.022-0.50]* |
| *Dim sum* | *10* | *0.083 [0.022-0.20]* |
| Snacks | 6 | 0.073 [0.013-0.23] |
| Beverages | 8 | 0.02 [0-0.069] |

*TFA content in 100g of oils/fats*

14. The TFA content of oils/fats is shown in Figure 1. Except for canola oil and olive oil, all of them had TFA more than 0.3g/100g. Due to low market availability, hard margarine (with animal and vegetable fats/oils), hard margarine (with vegetable oils) and lard only had 1, 2 and 2 samples, respectively.

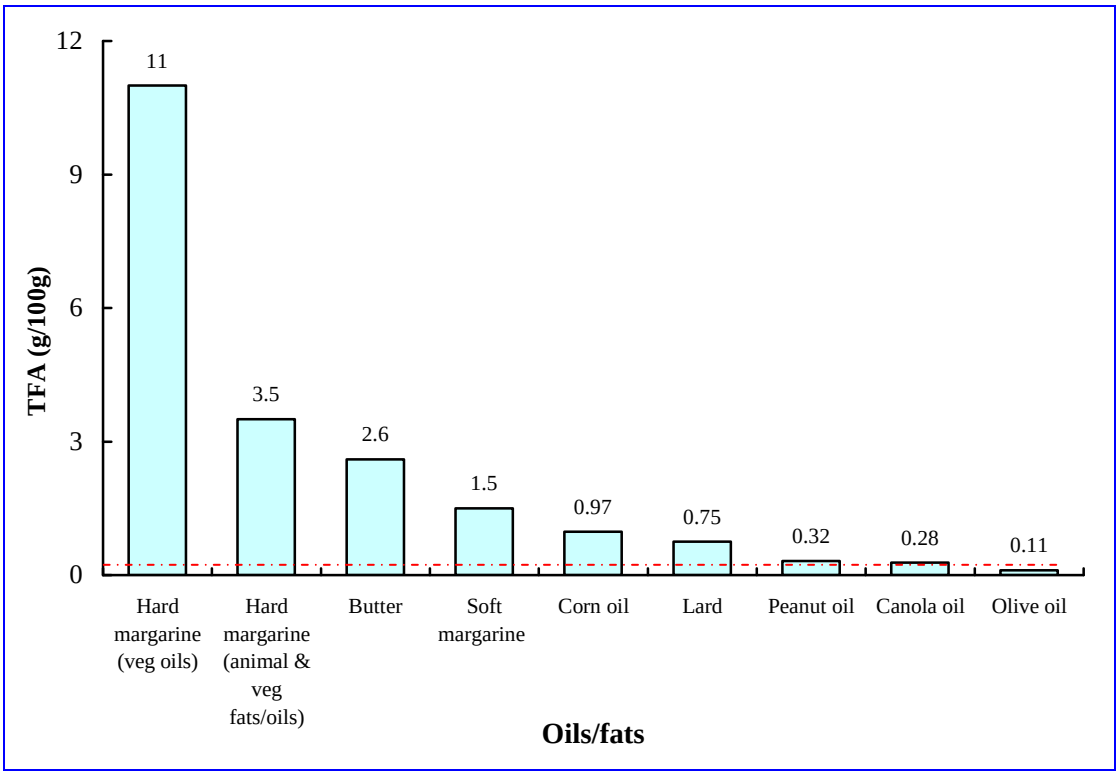


**Figure 1: TFA content in oils/fats (g/100g)**

15. As expected, margarines and butter had higher TFA content than lard or liquid vegetable oils. Boardly speaking, there are 2 types of margarine: soft margarine (usually in a tub) for spreading on bread, biscuits, etc. and hard margarine (usually in a stick form) for baking.[13] Similar to the previous studies, the TFA content of margarines varied widely by the ingredients and processing. Whereas the amount of TFA found in liquid vegetables oils could be a result of heating of oils at high temperatures during oil extraction or that being formed during the commercial refinement of these oils, especially for those high in PUFA.[1,14]

16. The TFA content of bakery products is shown in Figure 2. All of them had TFA more than 0.3g/100g, except for muffin, pizza bread and cream bun. Nevertheless, the range of the TFA content in these products was narrower than that of the bakery counterparts revealed in the previous 2 studies (0-4.7g/100g). Tuna puff and curry puff were the top 2 highest TFA foods (0.98g and 0.91g/100g, respectively).

Margarine is often used in making puff to form thin coherent films in the dough to withstand the heavy mechanical working and rolling without crumbling and softening.[13] Cream, cheese and butter are common ingredients of the various cakes and creamy buns (e.g. cocktail bun, cream bun).

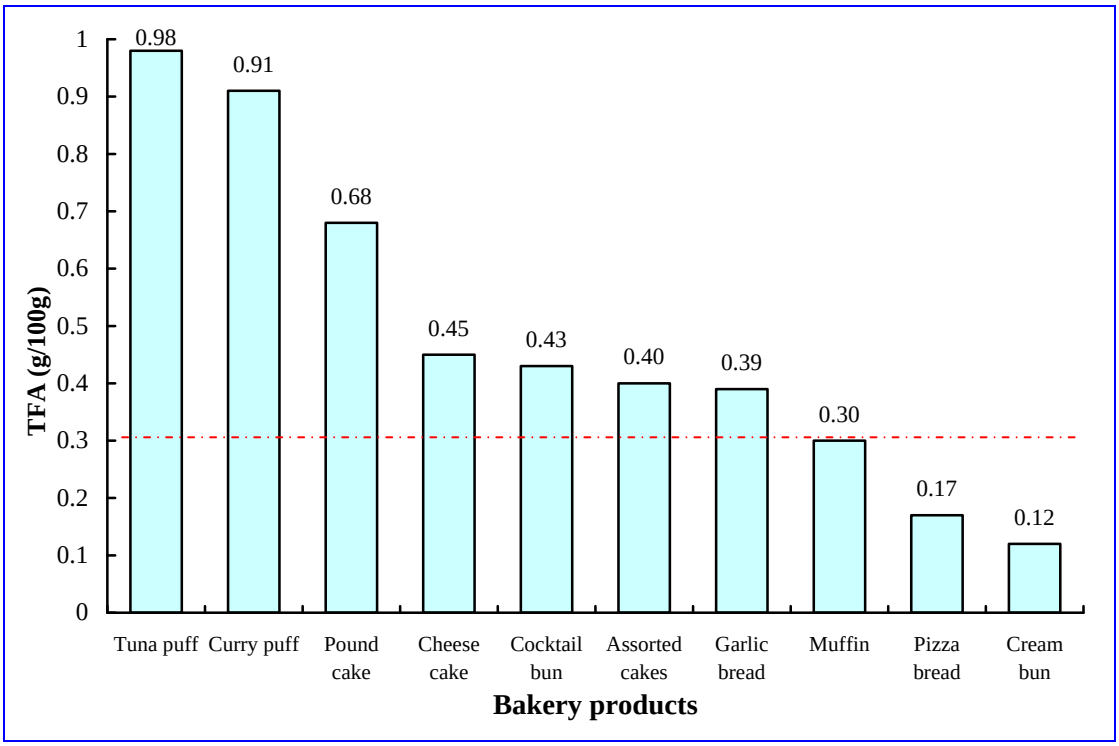


**Figure 2: TFA content in bakery products (g/100g)**

*TFA content in 100g of dairy/dairy-like products*

17. The TFA content of whipping cream, full cream milk and filled evaporated milk was 0.78g, 0.091g and 0.028g/100g respectively. Due to low market availability, whipping cream had 6 samples and filled evaporated milk 2 samples only. Being dairy products, natural presence of TFA is expected. Whipping cream is commonly used in cake/dessert toppings and coffee. The high TFA content may due to its animal fat content (at least 35% milk fat) for air bubbles to be formed and stabilised by agglomerated fat globules at the air-water interface.[13]

*TFA content in 100g of other ready-to-eat foods, snacks and beverages*

18. The TFA content of other ready-to-eat foods categorised as fast foods is shown in Figure 3. Except for cream soup with puff pastry, pancake with butter & syrup, and cheese burger (0.50g, 0.48g and 0.33g/100g, respectively), all the other fast foods studied had TFA not more than 0.3g/100g.

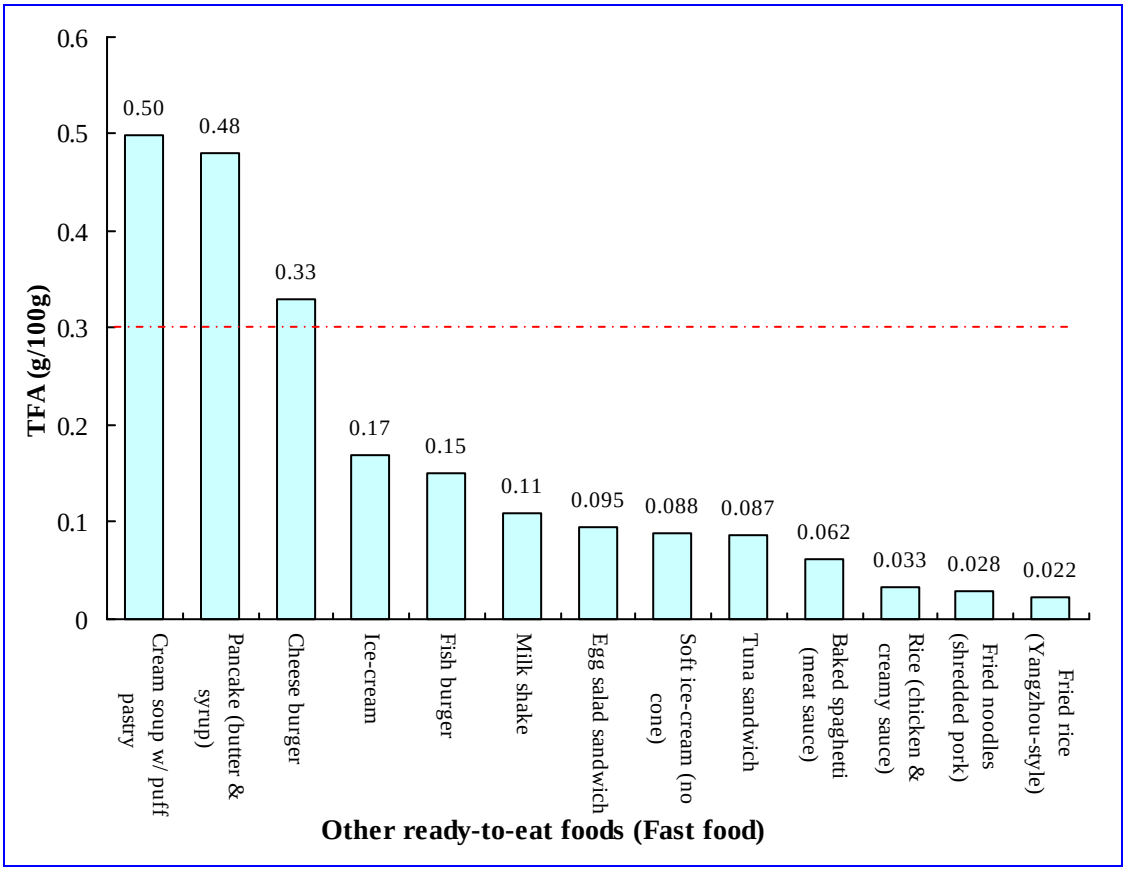


**Figure 3: TFA content in other ready-to-eat foods (fast food) (g/100g)**

19. Further analysis of the 10 samples of cream soup with puff pastry revealed that the TFA content of the puff pastry alone varied greatly. The weight of the 10 puff pastries with their TFA and SFA values in a per 100g basis are shown in Table 2. On average, a puff pastry weighed 51g (range 37g-67g). For each 100g of puff pastry, the average TFA and SFA contents were 2.1g (range 0.014g-3.5g) and 12g (range 10-14g), respectively. The 2 puff pastries with low TFA content may be made from blended or

interesterified fats. Interestification is a process to replace hydrogenation of oil through interchanging fatty acids between molecules of triglyceride.

**Table 2. Details of the TFA and SFA contents of the puff pastry (per 100g) in the 10 cream soup samples.**

| Individual sample # | Weight of each puff pastry (g) | TFA (g) | SFA (g) |
|---|---|---|---|
| *1* | 60 | 0.014 | 12 |
| *2* | 37 | 0.017 | 13 |
| *3* | 53 | 2.0 | 10 |
| *4* | 49 | 2.1 | 11 |
| *5* | 52 | 2.5 | 13 |
| *6* | 49 | 2.5 | 13 |
| *7* | 46 | 2.6 | 14 |
| *8* | 67 | 2.7 | 12 |
| *9* | 41 | 2.8 | 12 |
| *10* | 49 | 3.5 | 13 |

20. The TFA content per 100g of food for ready-to-eat foods categorised as dim sum, snacks and beverages were all below 0.3g. The small amount of TFA may be attributable to the puff pastry used in the baked barbequed pork puff, the partially hydrogenated vegetable oil added to the toffee candy and the milk added to the beverages.

*WHO/FAO's daily intake recommendations on TFA and SFA*

21. Fat plays an important role in our diet. It is a concentrated energy source (providing 9 kcal/g), which also aids in the absorption of fat-soluble vitamins (i.e. vitamin A, D, E, and K) and provides essential fatty acids that are not produced by our body. When eaten in moderation, it promotes maintenance of good health. Excessive

fat intake, however, has been linked to major health problems, such as increased risks of heart disease, obesity and certain types of cancers.

22. For prevention of chronic diseases, WHO and the Food and Agriculture Organization (FAO) of the United Nations have recommended a set of population nutrient intakes (Annex V).[15] Less than 1% or 10% of daily energy intake should be from TFA or SFA, respectively. Using the conversion factor of 1g fat equals to 9 kilocalories (kcal) of energy, for example, an adult with a daily energy intake of 2000 kcal should limit TFA and SFA intakes to less than 2.2 and 22.2g per day (d), respectively.

23. The amount of TFA, SFA, energy and other nutrients present in each unit of the 59 local foods is listed in Annex VI. The hard margarine (with vegetable oils) sample had high TFA level (11g/100g). A tablespoon (about 14g) of it would have contained 1.5g of TFA, thus for an adult with an energy intake of 2000kcal/d, this would contribute to 68% of daily TFA intake limit.

24. Some foods were not only high in TFA content per unit, but also high in SFA, for example, foods with puff pastry and foods containing dairy or cheese shown in Table 3. The findings echo the TFA levels in croissants and creamy buns tested in the previous 2 studies. Assuming an adult eats no other foods with TFA and SFA, by consuming just 1 to 3 units of each item listed in Table 3, one would have already exceeded the WHO/FAO's recommendation on daily TFA and SFA intake limits.

**Table 3. Details of foods high in TFA and SFA contents and their percentage contributions to the recommended daily intake limits [%] in each unit of food.**

| Food item | Unit & Unit weight | TFA[*1] | SFA[*2] |
|---|---|---|---|
| | | Per unit (g) [%] | Per unit (g) [%] |
| Foods with puff pastry | | | |
| *tuna puff* | 1 puff (84g) | 0.82 [37%] | 7.6 [34%] |
| *curry puff* | 1 puff (70g) | 0.64 [29%] | 8.4 [38%] |
| *cream soup with puff pastry* | 1 bowl (315g) | 1.6 [73%] | 11 [50%] |
| Foods containing dairy or cheese | | | |
| *cheese cake* | 1 piece (126g) | 0.57 [26%] | 15 [68%] |
| *cheese burger* | 1 piece (254g) | 0.84 [38%] | 13 [59%] |
| *whipping cream* | 100ml unwhipped (98g) | 0.76 [35%] | 23 [104%] |

*1: an adult with a daily energy intake of 2000kcal is recommended to limit TFA intake to less than 2.2g/d.
*2: an adult with a daily energy intake of 2000kcal is recommended to limit SFA intake to less than 22.2 g/d.

*Tips to lower TFA and SFA intakes*

25. As revealed in Table 2, it is possible for the trade to lower the TFA content in the manufacturing process of making puff pastry. Furthermore, consumers can lower TFA and SFA intakes by limiting foods that are high in these contents (refer to Tables 2 and 3). When an individual consumes a bowl of cream soup with puff pastry (total 315g) containing 1.6g TFA and 11g SFA, these would be equivalent to 73% and 50%, respectively, of his/her daily TFA and SFA intake limits, of which about 1.1g TFA (i.e. 50% of the limit) and 6g SFA (i.e. 27% of the limit) are from the puff pastry.

## LIMITATIONS

26. Although the current study, plus the previous 2 studies, has revealed a number of foods with high TFA content, further studies are warranted to examine other

non-prepackaged foods that may be high in TFA, such as creamy cakes, puff pastry products and pies/tarts.

27. The study could not cover all variations of food items among the same type of food, e.g. ice-cream served with or without cone, pancake served with or without butter. The TFA content of the foods tested varied by the food processing methods, the ingredients used in the recipes, and the presentation of the food.

28. Some food items (e.g. “stinky tofu”, lard) had low market availability during the sampling period and had sampling size less than 10. The representativeness of these food items might not be as good as the other food items.

29. Some TFA isomers may not be identifiable even with the best available technology used by the FRL, thus the TFA content reported in this study may be underestimated.

**CONCLUSION AND RECOMMENDATIONS**

30. On the basis of the foods tested in this study, it is concluded that TFA are present in varying amounts in local foods, ranging from 0g to 11g/100g. On a per 100g basis, about 70% of foods tested had not more than 0.3g of TFA, whereas 24% had more than 0.3g but not more than 1.0g, 5% had more than 1.0g but not more than 5.0g, and 1% had more than 5.0g.. Oil/fats (especially margarines) and bakery products (especially puff pastry products) generally had high TFA content, and all liquid vegetable oils tested contained TFA. Besides TFA, some dairy or cheese-containing products also had high SFA content per unit.

**Advice to consumers**

31. The public is advised to:

(a) Maintain a balanced diet; avoid excessive intake of certain types of food.

(b) Choose foods based on their overall nutrient profile, including the amounts of TFA and SFA.

(c) Make reference to the information in the food label (including the ingredient list and nutrition label) and the available food composition databases to make healthier food choices.

(d) Consume foods containing high TFA infrequently, such as foods with puff pastry.

(e) Reduce the use of oils/fats when preparing foods. If necessary, use liquid vegetable oils rather than animal fats. Use margarines and butter sparingly.

**Advice to the trade**

32. Members of the trade are advised to:

(a) Modify the manufacturing process to lower TFA content in foods and oils/fats.

(b) Declare, for prepackaged foods, the amount of TFA content on the nutrition label to enable consumers make an informed choice.

(c) Refer to the "Trade Guidelines on Reducing Trans Fat in Food" (http://www.cfs.gov.hk/english/food_leg/files/trans-fats-guide-e.pdf) for alternatives of providing healthier food choices to consumers.

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**Annex I. Local foods presented in this study**

| | |
|---|---|
| **Oils/fats油脂** | |
| 1. Peanut oil[*1] | 花生油 |
| 2. Corn oil[*1] | 粟米油 |
| 3. Canola oil[*1] | 芥花籽油 |
| 4. Olive oil[*1] | 橄欖油 |
| 5. Soft margarine | 軟人造牛油 |
| 6. Hard margarine (with animal and vegetable fats/oils)[*2] | 硬人造牛油(含動物性油脂及植物油) |
| 7. Hard margarine (with vegetable oils)[*2] | 硬人造牛油(含植物油) |
| 8. Butter | 牛油 |
| 9. Lard[*2] | 豬油 |
| | |
| **Bakery products 烘焙食品** | |
| 1. Cheese cake | 芝士蛋糕 |
| 2. Assorted cakes | 雜款西餅 |
| 3. Pound cake | 淨牛油蛋糕 |
| 4. Muffin | 鬆餅 |
| 5. Cream bun | 忌廉包 |
| 6. Garlic bread | 蒜蓉包 |
| 7. Cocktail bun | 雞尾包 |
| 8. Tuna puff | 吞拿魚酥皮卷 |
| 9. Curry puff | 咖喱酥皮卷 |
| 10. Pizza bread (contains cheese, meat and vegetables) | 薄餅麵包(含芝士、肉類及蔬菜) |
| | |
| **Dairy/dairy-like products奶及奶製品** | |
| 1. Full cream milk[*1] | 全脂奶 |
| 2. Filled evaporated milk[*2] | 植脂淡奶 |
| 3. Whipping cream[*1,2] | 攪拌忌廉 |
| | |
| **Other ready-to-eat foods 其他即食食物** | |
| ***Fast foods快餐食物*** | |
| 1. Rice with chicken and creamy sauce | 白汁雞絲飯 |
| 2. Baked spaghetti with meat sauce | 焗肉醬意粉 |
| 3. Fried noodles with shredded pork | 肉絲炒麵 |

| | |
|---|---|
| 4. Fried rice in Yangzhou-style | 楊州炒飯 |
| 5. Cheese burger | 芝士漢堡包 |
| 6. Fish burger | 魚柳包 |
| 7. Cream soup with puff pastry | 酥皮忌廉湯 |
| 8. Tuna sandwich | 吞拿魚三文治 |
| 9. Egg salad sandwich | 蛋沙律三文治 |
| 10. Pancake (with butter and syrup) | 班戟(加牛油及糖漿) |
| 11. Milk shake | 奶昔 |
| 12. Soft ice-cream (without cone) | 軟雪糕(不連筒) |
| 13. Ice-cream | 雪糕 |
| ***Dim sum點心食物*** | |
| 1. Curry fish ball | 咖喱魚蛋 |
| 2. Eggplant, bell pepper and fried tofu stuffed with minced dace | 煎釀三寶 |
| 3. "Stinky tofu"[*1] | 臭豆腐 |
| 4. Spring roll | 春卷 |
| 5. Deep-fried taro dumpling | 芋角 |
| 6. Deep-fried meat dumpling | 鹹水角 |
| 7. Baked barbecued pork puff | 叉燒酥 |
| 8. Red bean pancake | 豆沙鍋餅 |
| 9. Spring onion pancake | 蔥油餅 |
| 10. Paratha | 印度薄餅 |
| | |
| **Snacks零食** | |
| 1. Popcorns (popped) | 爆谷(已熟) |
| 2. Dehydrated vegetables and fruits chips | 脫水蔬菜水果片 |
| 3. "Fluffy" peanut candy | 花生酥糖 |
| 4. Sesame candy | 芝麻糖 |
| 5. Nougat | 鳥結糖 |
| 6. Toffee candy | 拖肥糖 |
| | |
| **Beverages不含酒精飲品** | |
| 1. Red bean icy drink (Regular)[*1] | 紅豆冰(普通) |
| 2. “Cendol” icy drink (Regular)[*1] | 珍多冰(普通) |
| 3. Tri-colour icy drink (Regular)[*1] | 三色冰(普通) |
| 4. Coffee[*1] | 咖啡 |
| 5. Milk tea[*1] | 奶茶 |

| | |
|---|---|
| 6. Almond drink[*1] | 杏仁霜 |
| 7. “Yuan-yang” (mixed coffee milk-tea) [*1] | 鴛鴦 |
| 8. Milk tea with pearl tapioca[*1] | 珍珠奶茶 |

*1 Data can be converted from per 100g to per 100ml basing on their density (g/ml) measured by FRL.

*2 All items had 10 samples paired to form 5 composites, except for the followings due to their inavilability in the market (number of items purchased): “stinky tofu” (6), filled evaporated milk (2), whipping cream (6), lard (2), hard margarine (2 with vegetable oils and 1 with animal and vegetable fats/oils).

**Annex II. Testing methods for determining nutrient contents in local foods**

Single-laboratory validated test methods based on the following references:

| Nutrient parameters | Reference* |
|---|---|
| Cholesterol | AOAC 994.10 |
| Total dietary fibre | AOAC 985.29 |
| Protein | AOAC 992.15 and AOAC 992.23 |
| Total fat | AOAC 922.06 |
| Moisture | International Standard ISO 1442:1997 |
| Ash | International Standard ISO 936:1998 |
| Nutritional elements | Acid digestion followed by ICP-OES† determination |
| Sugars | AOAC 977.20, AOAC 980.13 and AOAC 982.14 |
| Fatty acids (SFA, TFA) | AOAC 996.06 |

**Notes:**

* All AOAC Official Methods quoted are referred to AOAC Official Method, 18th edition, 2005, Current Through Revision 2, 2007 AOAC INTERNATIONAL.

† ICP-OES refers to inductively coupled plasma – optical emission spectrometry

**Nutrient parameters by calculation:**

(a) **Available Carbohydrate** is calculated by subtraction of the sum of moisture, ash, total dietary fibre, total fat and protein from the total weight of the food.

(b) **Energy** is calculated as the sum of contents of total fat, protein and available carbohydrate multiplying their corresponding conversion factors (i.e. Available carbohydrate: 4kcal/g, Protein: 4kcal/g, Total fat: 9kcal/g).

(c) **Protein** is calculated on the basis of the factor of 6.25 times the contents of Total Nitrogen in food determined by either Kjeldahl or Combustion Method.

(d) **SFA** are the sum of 13 saturated fatty acids including $C_{4:0}$, $C_{6:0}$, $C_{8:0}$, $C_{10:0}$, $C_{12:0}$, $C_{14:0}$, $C_{15:0}$, $C_{16:0}$, $C_{17:0}$, $C_{18:0}$, $C_{20:0}$, $C_{22:0}$ and $C_{24:0}$.

(e) **TFA** are the sum of 8 trans fatty acids including $C_{14:1T\ (9\text{-}trans)}$, $C_{16:1T\ (9\text{-}trans)}$, $C_{18:1T\ (total)}$, $C_{18:2TT\ (9,12\text{-}trans)}$, $C_{18:2T\ (9\text{-}cis,\ 12\text{-}trans)}$, $C_{18:2T\ (9\text{-}trans,\ 12\text{-}cis)}$, $C_{20:1T\ (11\text{-}trans)}$, and $C_{22:1T\ (13\text{-}trans)}$.

(f) **Sugar** is the sum of 6 individual sugars including fructose, glucose, galactose, sucrose, maltose and lactose.

**Annex III. Limit of Detection (LOD) and Limit of Quantitation (LOQ) for determining nutrient contents in foods**

| Nutrient parameters | LOD (per 100 g or mL) | LOQ (per 100 g or mL) |
|---|---|---|
| Cholesterol | 0.02 mg | 0.06 mg |
| Total dietary fibre | 0.4 g | 1 g |
| Protein | 0.1 g | 0.3 g |
| Total fat | 0.1 g | 0.3 g |
| Moisture | 0.1 g | 0.1 g |
| Ash | 0.1 g | 0.1 g |
| **Nutritional elements** | | |
| Calcium | 0.4 mg | 1 mg |
| Sodium | 2 mg | 5 mg |
| **Sugars** | | |
| Fructose | 0.02 g | 0.02 g |
| Galactose | 0.04 g | 0.04 g |
| Glucose | 0.02 g | 0.02 g |
| Sucrose | 0.02 g | 0.02 g |
| Maltose | 0.02 g | 0.02 g |
| Lactose | 0.02 g | 0.02 g |
| **Saturated fatty acids** | | |
| C4:0 | 0.0005 g | 0.002 g |
| C6:0 | 0.004 g | 0.01 g |
| C8:0 | 0.005 g | 0.02 g |
| C10:0 | 0.002 g | 0.006 g |
| C12:0 | 0.001 g | 0.003 g |
| C14:0 | 0.002 g | 0.006 g |
| C15:0 | 0.002 g | 0.006 g |
| C16:0 | 0.002 g | 0.005 g |
| C17:0 | 0.002 g | 0.005 g |
| C18:0 | 0.002 g | 0.006 g |
| C20:0 | 0.001 g | 0.004 g |
| C22:0 | 0.002 g | 0.007 g |
| C24:0 | 0.002 g | 0.008 g |
| **Trans fatty acids** | | |
| C14:1T (9-*trans*) | 0.004 g | 0.01g |
| C16:1T (9-*trans*) | 0.004 g | 0.01g |
| C18:1T (total) | 0.004 g | 0.01g |

## Annex III

| Nutrient parameters | LOD (per 100 g or mL) | LOQ (per 100 g or mL) |
|---|---|---|
| C18:2TT (9,12-*trans*) | 0.004 g | 0.01g |
| C18:2T (9-*cis*, 12-*trans*) | 0.004 g | 0.01g |
| C18:2T (9-*trans*, 12-*cis*) | 0.004 g | 0.01g |
| C20:1T (11-*trans*) | 0.004 g | 0.01g |
| C22:1T (13-*trans*) | 0.004 g | 0.01g |

**Notes:**

(a) "0" denotes that the test result is below LOD.

(b) "Trace" denotes that the test result is between the LOD and the LOQ.

## Annex IV. Nutrient content of local foods (per 100 g)

| Food item / Nutrient Parameters[*1] | | Energy (kcal) | Protein (g) | CHO (g) | Sugars (g) | Dietary fibre (g) | Total fats (g) | SFA (g) | TFA (g) | Chol (mg) | Ca (mg) | Na (mg) | Remarks[*2] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Oils and fats 油脂** | | | | | | | | | | | | | |
| Peanut oil | 花生油 | 900 | 0 | 0 | 0 | 0 | 100 | 17 | 0.32 | 0.80 | 0 | 0 | D=0.912 g/ml |
| Corn oil | 粟米油 | 900 | 0 | 0 | 0 | 0 | 100 | 13 | 0.97 | 1.3 | 0 | 0 | D=0.914 g/ml |
| Canola oil | 芥花籽油 | 900 | 0 | 0 | 0 | 0 | 100 | 6.5 | 0.28 | 2.4 | 0 | 0 | D=0.913 g/ml |
| Olive oil | 橄欖油 | 900 | 0 | 0 | 0 | 0 | 100 | 14 | 0.11 | 0 | 0 | 0 | D=0.907 g/ml |
| Soft margarine | 軟人造牛油 | 670 | Trace | 1.3 | 0.41 | 0 | 75 | 17 | 1.5 | 4.7 | 9.6 | 520 | |
| Hard margarine (with animal and vegetable fats/oils)[*3] | 硬人造牛油(含動物性油脂及植物油) | 730 | 0 | 0.60 | 0 | 0 | 81 | 33 | 3.5 | 150 | 3.4 | 1400 | |
| Hard margarine (with vegetable oils)[*3] | 硬人造牛油(含植物油) | 730 | Trace | 1.2 | 0 | 0 | 80 | 14 | 11 | 1.4 | 2.0 | 470 | |
| Butter | 牛油 | 740 | 0.5 | 1.1 | 0.59 | 0 | 81 | 52 | 2.6 | 240 | 22 | 590 | |
| Lard[*3] | 豬油 | 900 | 0 | 0.20 | 0 | 0 | 100 | 38 | 0.75 | 95 | 0 | 0 | |
| **Bakery products 烘焙食品** | | | | | | | | | | | | | |
| Cheese cake | 芝士蛋糕 | 320 | 7.6 | 30 | 19 | Trace | 19 | 12 | 0.45 | 130 | 60 | 210 | |
| Assorted cakes | 雜款西餅 | 330 | 5.9 | 35 | 24 | 1.4 | 18 | 8.9 | 0.40 | 100 | 32 | 160 | |
| Pound cake | 淨牛油蛋糕 | 420 | 6.7 | 45 | 26 | Trace | 24 | 11 | 0.68 | 120 | 31 | 300 | |
| Muffin | 鬆餅 | 390 | 6.7 | 48 | 26 | 1.8 | 19 | 6.5 | 0.30 | 84 | 43 | 320 | |
| Cream bun | 忌廉包 | 280 | 7.3 | 43 | 14 | 1.2 | 8.6 | 3.8 | 0.12 | 29 | 54 | 150 | |
| Garlic bread | 蒜蓉包 | 370 | 11 | 52 | 5.7 | 2.4 | 13 | 5.8 | 0.39 | 23 | 52 | 500 | |
| Cocktail bun | 雞尾包 | 400 | 8.3 | 47 | 16 | 2.2 | 19 | 10 | 0.43 | 31 | 57 | 240 | |

| Food item / Nutrient Parameters[*1] | | Energy (kcal) | Protein (g) | CHO (g) | Sugars (g) | Dietary fibre (g) | Total fats (g) | SFA (g) | TFA (g) | Chol (mg) | Ca (mg) | Na (mg) | Remarks[*2] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tuna puff | 吞拿魚酥皮卷 | 360 | 11 | 30 | 4.4 | 1.3 | 21 | 9.0 | 0.98 | 69 | 41 | 510 | |
| Curry puff | 咖喱酥皮卷 | 400 | 8.6 | 31 | 3.8 | 1.9 | 26 | 12 | 0.91 | 67 | 29 | 550 | |
| Pizza bread (contains cheese, meat and vegetables) | 薄餅麵包(含芝士、肉類及蔬菜) | 260 | 11 | 31 | 8.4 | 1.9 | 10 | 4.3 | 0.17 | 34 | 120 | 540 | |
| **Dairy and dairy-like products 奶及奶製品** | | | | | | | | | | | | | |
| Full cream milk | 全脂奶 | 64 | 3.1 | 4.7 | 4.2 | 0 | 3.7 | 1.8 | 0.091 | 14 | 110 | 40 | D=1.026 g/ml |
| Filled evaporated milk[*3] | 植脂淡奶 | 120 | 5.9 | 11 | 9.9 | 0 | 6.1 | 2.7 | 0.028 | 4.4 | 220 | 130 | |
| Whipping cream[*3] | 攪拌忌廉 | 350 | 2.2 | 3.6 | 2.7 | 0 | 36 | 23 | 0.78 | 110 | 73 | 29 | D=0.976 g/ml |
| **Other ready-to-eat foods 其他即食食物** | | | | | | | | | | | | | |
| ***Fast foods快餐食物*** | | | | | | | | | | | | | |
| Rice with chicken and creamy sauce | 白汁雞絲飯 | 140 | 5.0 | 20 | 0.32 | Trace | 4.3 | 1.4 | 0.033 | 19 | 13 | 220 | |
| Baked spaghetti with meat sauce | 焗肉醬意粉 | 140 | 7.7 | 16 | 2.0 | 1.7 | 5.5 | 1.6 | 0.062 | 16 | 39 | 410 | |
| Fried noodles with shredded pork | 肉絲炒麵 | 160 | 5.9 | 15 | 0.63 | 1.3 | 8.9 | 1.4 | 0.028 | 26 | 14 | 390 | |
| Fried rice in Yangzhou-style | 楊州炒飯 | 190 | 7.0 | 25 | 0.55 | Trace | 7.2 | 1.6 | 0.022 | 77 | 16 | 330 | |
| Cheese burger | 芝士漢堡包 | 240 | 13 | 20 | 3.9 | 1.2 | 12 | 5.0 | 0.33 | 38 | 100 | 500 | |
| Fish burger | 魚柳包 | 280 | 11 | 27 | 4.0 | 1.4 | 14 | 3.7 | 0.15 | 31 | 44 | 420 | |
| Tuna sandwich | 吞拿魚三文治 | 210 | 10 | 23 | 4.6 | 1.6 | 8.6 | 2.1 | 0.087 | 35 | 22 | 420 | |
| Egg salad sandwich | 蛋沙律三文治 | 200 | 8.4 | 20 | 2.8 | 1.7 | 9.6 | 2.6 | 0.095 | 110 | 40 | 380 | |
| Cream soup with puff pastry | 酥皮忌廉湯 | 130 | 3.3 | 9.9 | 1.5 | Trace | 8.2 | 3.4 | 0.50 | 14 | 22 | 350 | |
| Milk shake | 奶昔 | 110 | 1.3 | 14 | 12 | 0 | 5.2 | 2.8 | 0.11 | 13 | 90 | 41 | |
| Soft ice-cream (without cone) | 軟雪糕(不連筒) | 150 | 2.9 | 23 | 18 | Trace | 5.0 | 2.5 | 0.088 | 17 | 130 | 66 | |

# Annex IV

| Food item / Nutrient Parameters[*1] | | Energy (kcal) | Protein (g) | CHO (g) | Sugars (g) | Dietary fibre (g) | Total fats (g) | SFA (g) | TFA (g) | Chol (mg) | Ca (mg) | Na (mg) | Remarks[*2] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ice-cream | 雪糕 | 180 | 3.6 | 23 | 21 | Trace | 8.6 | 4.9 | 0.17 | 43 | 120 | 54 | |
| Pancake (with butter and syrup) | 班戟(加牛油及糖漿) | 310 | 5.0 | 45 | 24 | 1.0 | 12 | 4.8 | 0.48 | 49 | 56 | 330 | |
| ***Dim sum點心食物*** | | | | | | | | | | | | | |
| Curry fish ball | 咖喱魚蛋 | 130 | 8.7 | 16 | 3.3 | 1.3 | 2.8 | 0.60 | 0.024 | 20 | 55 | 950 | |
| Eggplant, bell pepper and fried tofu stuffed with minced dace | 煎釀三寶 | 110 | 7.0 | 7.1 | 2.1 | 1.8 | 5.4 | 1.3 | 0.022 | 6.6 | 190 | 260 | |
| "Stinky tofu"[*3] | 臭豆腐 | 150 | 17 | 11 | 0.22 | 1.4 | 4.3 | 2.4 | 0.048 | 0.86 | 140 | 380 | |
| Spring roll | 春卷 | 320 | 9.1 | 25 | 2.6 | 1.7 | 21 | 3.7 | 0.072 | 33 | 26 | 500 | |
| Deep-fried taro dumpling | 芋角 | 360 | 4.7 | 25 | 2.0 | 1.7 | 27 | 5.5 | 0.091 | 12 | 28 | 370 | |
| Deep-fried meat dumpling | 鹹水角 | 330 | 5.2 | 41 | 8.9 | 1.0 | 16 | 4.5 | 0.047 | 15 | 17 | 230 | |
| Baked barbecued pork puff | 叉燒酥 | 430 | 8.6 | 33 | 6.1 | 1.6 | 29 | 10 | 0.20 | 81 | 17 | 320 | |
| Red bean pancake | 豆沙鍋餅 | 320 | 6.0 | 39 | 15 | 2.6 | 16 | 2.6 | 0.085 | 67 | 27 | 24 | |
| Spring onion pancake | 蔥油餅 | 360 | 5.6 | 38 | 3.5 | 1.8 | 21 | 4.9 | 0.18 | 15 | 23 | 350 | |
| Paratha | 印度薄餅 | 320 | 8.2 | 49 | 3.1 | 2.4 | 9.8 | 2.8 | 0.064 | 4.0 | 26 | 370 | |
| **Snacks 零食** | | | | | | | | | | | | | |
| Popcorns (popped) | 爆谷(已熟) | 500 | 4.5 | 58 | 30 | 7.4 | 28 | 20 | 0.027 | 0.35 | 6.5 | 27 | |
| Dehydrated vegetables and fruits chips | 脫水蔬菜水果片 | 460 | 4.4 | 55 | 34 | 9.5 | 25 | 5.5 | 0.095 | 0.59 | 53 | 130 | |
| "Fluffy" peanut candy | 花生酥糖 | 480 | 13 | 58 | 47 | 2.8 | 22 | 4.1 | 0.013 | 0.44 | 26 | 5 | |
| Sesame candy | 芝麻糖 | 510 | 15 | 47 | 34 | 4.9 | 29 | 4.3 | 0.014 | 0 | 150 | 10 | |
| Nougat | 鳥結糖 | 430 | 7.1 | 68 | 40 | 2.9 | 14 | 3.8 | 0.057 | 5.5 | 76 | 67 | |
| Toffee candy | 拖肥糖 | 470 | 3.7 | 68 | 49 | 1.4 | 21 | 11 | 0.23 | 18 | 110 | 190 | |

# Annex IV

| Food item / Nutrient Parameters[*1] | | Energy (kcal) | Protein (g) | CHO (g) | Sugars (g) | Dietary fibre (g) | Total fats (g) | SFA (g) | TFA (g) | Chol (mg) | Ca (mg) | Na (mg) | Remarks[*2] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Beverages 不含酒精飲品** | | | | | | | | | | | | | |
| Red bean icy drink (Regular) | 紅豆冰(普通) | 82 | 2.4 | 15 | 11 | 1.9 | 1.1 | 0.51 | 0.012 | 1.9 | 32 | 10 | D=1.068 g/ml |
| "Cendol" icy drink (Regular) | 珍多冰(普通) | 77 | 0 | 11 | 7.2 | 0 | 3.8 | 3.0 | 0 | 0.20 | 6.7 | 12 | D=1.037 g/ml |
| Tri-colour icy drink (Regular) | 三色冰(普通) | 78 | 1.0 | 12 | 10 | 1.1 | 2.8 | 2.2 | 0 | 0.09 | 5.6 | 8 | D=1.066 g/ml |
| Coffee | 咖啡 | 41 | 1.9 | 3.2 | 2.0 | Trace | 2.3 | 1.3 | 0.033 | 6.1 | 60 | 32 | D=1.041 g/ml |
| Milk tea | 奶茶 | 44 | 2.2 | 3.1 | 2.8 | 1.1 | 2.6 | 1.3 | 0.069 | 6.8 | 74 | 38 | D=1.047 g/ml |
| Almond drink | 杏仁霜 | 45 | 1.4 | 6.1 | 3.7 | 0 | 1.7 | 0.98 | 0.017 | 3.3 | 45 | 23 | D=1.023 g/ml |
| "Yuan-yang" (mixed coffee milk-tea) | 鴛鴦 | 52 | 2.4 | 5.2 | 4.8 | Trace | 2.3 | 1.5 | 0.024 | 8.1 | 68 | 30 | D=1.022 g/ml |
| Milk tea with pearl tapioca | 珍珠奶茶 | 72 | 0.3 | 11 | 5.1 | Trace | 2.7 | 2.4 | 0.021 | 0.06 | 2.5 | 24 | D=1.043 g/ml |

*1 CHO = available carbohydrates; SFA = saturated fatty acids; TFA = trans fatty acids; Chol = cholesterol; Ca = calcium; Na = sodium. All values are rounded to the same decimal places as the limit of detection (LOD) and then to two significant figures, except for Energy and CHO (only rounded up to two significant figures). Values below LOD were reported as “0”. Values between LOD and LOQ were reported as “Trace”.

*2 D = Averaged density measured by FRL. To convert the nutrient value per 100g to per 100ml, multiply that nutrient value by the density. For example, the density of peanut oil is 0.912 g/ml. the TFA per 100ml will be 0.32*0.912, i.e. 0.29g per 100ml.

*3 All items had 10 samples paired to form 5 composites, except for the followings due to their inavilability in the market (number of items purchased): “stinky tofu” (6), filled evaporated milk (2), whipping cream (6), lard (2), hard margarine (1 with animal & vegetable fats/oils, 2 with vegetable oils). The nutrient means of “stinky tofu” and whipping cream are calculated using this formula: [(composite 1 *2) + individual sample 2 + individual sample 3 + individual sample 4 + individual sample 5]/6.

**Annex V. Recommendations of WHO and FAO on nutrient intakes**

Ranges of population daily nutrient intake goals established by FAO/WHO (2003)

| Dietary factor | Goal (% of total daily energy intake, unless otherwise stated) |
|---|---|
| Total fat | 15-30% |
| Saturated fatty acids (SFA) | <10% |
| Polyunsaturated fatty acids (PUFA) | 6-10% |
| Trans fatty acids (TFA) | <1% |
| Monounsaturated fatty acids (MUFA) | By difference[§] |
| Total carbohydrate | 55-75%[†] |
| Protein | 10-15% |
| Cholesterol | <300 mg |
| Sodium chloride (sodium)[‡] | <5g (< 2g) |
| Fruit and vegetable | ≥400g |
| Total dietary fibre | >25g |

§ MUFA = Total fat – (SFA + PUFA + TFA)

† The percentage of total energy available after taking into account that consumed as protein and fat, hence the wide range.

‡ Salt should be iodised appropriately.

## Annex VI. Nutrient Content of Local Foods (per unit)

| Food items / Nutrient Parameters[*1] | | Energy (kcal) | Protein (g) | Available CHO (g) | Sugars (g) | Dietary fibre (g) | Total fats (g) | SFA (g) | TFA (g) | Chol (mg) | Ca (mg) | Na (mg) | Unit[*2] | Unit Wt[*3] (g) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Oils and fats 油脂** | | | | | | | | | | | | | | |
| Peanut oil | 花生油 | 130 | 0 | 0 | 0 | 0 | 14 | 2.4 | 0.045 | 0.11 | 0 | 0 | 1 tbsp | 14 |
| Corn oil | 粟米油 | 130 | 0 | 0 | 0 | 0 | 14 | 1.8 | 0.14 | 0.18 | 0 | 0 | 1 tbsp | 14 |
| Canola oil | 芥花籽油 | 130 | 0 | 0 | 0 | 0 | 14 | 0.91 | 0.039 | 0.34 | 0 | 0 | 1 tbsp | 14 |
| Olive oil | 橄欖油 | 130 | 0 | 0 | 0 | 0 | 14 | 2.0 | 0.015 | 0 | 0 | 0 | 1 tbsp | 14 |
| Soft margarine | 軟人造牛油 | 94 | Trace | 0.18 | 0.06 | 0 | 11 | 2.4 | 0.21 | 0.66 | 1.3 | 73 | 1 tbsp | 14 |
| Hard margarine (with animal and vegetable fats/oils)[*4] | 硬人造牛油(含動物性油脂及植物油) | 100 | 0 | 0.084 | 0 | 0 | 11 | 4.6 | 0.49 | 21 | 0.5 | 200 | 1 tbsp | 14 |
| Hard margarine (with vegetable oils)[*4] | 硬人造牛油(含植物油) | 100 | Trace | 0.17 | 0 | 0 | 11 | 2.0 | 1.5 | 0.2 | 0.3 | 66 | 1 tbsp | 14 |
| Butter | 牛油 | 100 | 0.1 | 0.15 | 0.08 | 0 | 11 | 7.3 | 0.36 | 34 | 3.1 | 83 | 1 tbsp | 14 |
| Lard[*4] | 豬油 | 120 | Trace | 0.026 | 0 | 0 | 13 | 4.9 | 0.098 | 12 | 0 | 0 | 1 tbsp | 13 |
| **Bakery products 烘焙食品** | | | | | | | | | | | | | | |
| Cheese cake | 芝士蛋糕 | 400 | 9.6 | 38 | 24 | Trace | 24 | 15 | 0.57 | 160 | 76 | 260 | 1 piece | 126 |
| Assorted cakes | 雜款西餅 | 250 | 4.5 | 27 | 18 | 1.1 | 14 | 6.8 | 0.30 | 76 | 24 | 120 | 1 piece | 76 |
| Pound cake | 淨牛油蛋糕 | 240 | 3.8 | 25 | 15 | Trace | 13 | 6.2 | 0.38 | 67 | 17 | 170 | 1 piece | 56 |
| Muffin | 鬆餅 | 320 | 5.4 | 39 | 21 | 1.5 | 15 | 5.3 | 0.24 | 68 | 35 | 260 | 1 piece | 81 |
| Cream bun | 忌廉包 | 290 | 7.7 | 45 | 15 | 1.3 | 9.0 | 4.0 | 0.13 | 30 | 57 | 160 | 1 piece | 105 |
| Garlic bread | 蒜蓉包 | 220 | 6.5 | 31 | 3.4 | 1.4 | 7.7 | 3.4 | 0.23 | 14 | 31 | 300 | 1 piece | 59 |
| Cocktail bun | 雞尾包 | 360 | 7.5 | 42 | 14 | 2.0 | 17 | 9.0 | 0.39 | 28 | 51 | 220 | 1 piece | 90 |

| Food items / Nutrient Parameters[*1] | | Energy (kcal) | Protein (g) | Available CHO (g) | Sugars (g) | Dietary fibre (g) | Total fats (g) | SFA (g) | TFA (g) | Chol (mg) | Ca (mg) | Na (mg) | Unit[*2] | Unit Wt[*3] (g) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Tuna puff | 吞拿魚酥皮卷 | 300 | 9.2 | 25 | 3.7 | 1.1 | 18 | 7.6 | 0.82 | 58 | 34 | 430 | 1 puff | 84 |
| Curry puff | 咖喱酥皮卷 | 280 | 6.0 | 22 | 2.7 | 1.3 | 18 | 8.4 | 0.64 | 47 | 20 | 390 | 1 puff | 70 |
| Pizza bread (contains cheese, meat and vegetables) | 薄餅麵包(含芝士、肉類及蔬菜) | 300 | 13 | 36 | 9.7 | 2.2 | 12 | 4.9 | 0.20 | 39 | 140 | 620 | 1 slice | 115 |
| **Dairy and dairy-like products 奶及奶製品** | | | | | | | | | | | | | | |
| Full cream milk | 全脂奶 | 160 | 8.0 | 12 | 11 | 0 | 9.5 | 4.6 | 0.23 | 36 | 280 | 100 | 1 cup | 257 |
| Filled evaporated milk[*4] | 植脂淡奶 | 310 | 15 | 28 | 25 | 0 | 16 | 6.9 | 0.072 | 11 | 570 | 330 | 1 cup | 257 |
| Whipping cream[*4] | 攪拌忌廉 | 340 | 2.2 | 3.5 | 2.6 | 0 | 35 | 23 | 0.76 | 110 | 72 | 28 | 100ml unwhipped | 98 |
| **Other ready-to-eat foods 其他即食食物** | | | | | | | | | | | | | | |
| ***Fast foods快餐食物*** | | | | | | | | | | | | | | |
| Rice with chicken & creamy sauce | 白汁雞絲飯 | 1000 | 37 | 150 | 2.3 | Trace | 31 | 10 | 0.24 | 140 | 95 | 1600 | 1 plate | 731 |
| Baked spaghetti with meat sauce | 焗肉醬意粉 | 820 | 45 | 94 | 12 | 10 | 32 | 9.4 | 0.36 | 94 | 230 | 2400 | 1 plate | 588 |
| Fried noodles with shredded pork | 肉絲炒麵 | 950 | 35 | 89 | 3.7 | 7.7 | 53 | 8.3 | 0.17 | 150 | 83 | 2300 | 1 plate | 591 |
| Fried rice in Yangzhou-style | 楊州炒飯 | 970 | 36 | 130 | 2.8 | Trace | 37 | 8.1 | 0.11 | 390 | 81 | 1700 | 1 plate | 508 |
| Cheese burger | 芝士漢堡包 | 610 | 33 | 51 | 9.9 | 3.0 | 30 | 13 | 0.84 | 97 | 250 | 1300 | 1 piece | 254 |
| Fish burger | 魚柳包 | 400 | 16 | 39 | 5.7 | 2.0 | 20 | 5.3 | 0.21 | 44 | 63 | 600 | 1 piece | 143 |
| Cream soup with puff pastry | 酥皮忌廉湯 | 410 | 10 | 31 | 4.7 | Trace | 26 | 11 | 1.6 | 44 | 69 | 1100 | 1 bowl | 315 |
| Tuna sandwich | 吞拿魚三文治 | 340 | 16 | 37 | 7.4 | 2.6 | 14 | 3.4 | 0.14 | 56 | 35 | 670 | 1 sandwich (2 slices of bread) | 160 |
| Egg salad sandwich | 蛋沙律三文治 | 390 | 16 | 39 | 5.5 | 3.3 | 19 | 5.1 | 0.19 | 210 | 78 | 740 | 1 sandwich | 195 |

# Annex VI

| Food items / Nutrient Parameters[*1] | | Energy (kcal) | Protein (g) | Available CHO (g) | Sugars (g) | Dietary fibre (g) | Total fats (g) | SFA (g) | TFA (g) | Chol (mg) | Ca (mg) | Na (mg) | Unit[*2] | Unit Wt[*3] (g) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | (2 slices of bread) | |
| Pancake (with butter and syrup) | 班戟(加牛油及糖漿) | 410 | 6.6 | 59 | 32 | 1.3 | 16 | 6.3 | 0.63 | 65 | 74 | 440 | 1 piece | 132 |
| Milk shake | 奶昔 | 330 | 3.9 | 42 | 36 | 0 | 16 | 8.5 | 0.33 | 39 | 270 | 120 | 1 cup | 302 |
| Soft ice-cream (without cone) | 軟雪糕(不連筒) | 160 | 3.0 | 24 | 19 | Trace | 5.2 | 2.6 | 0.092 | 18 | 140 | 69 | 1 ball | 104 |
| Ice-cream | 雪糕 | 130 | 2.6 | 17 | 15 | Trace | 6.3 | 3.6 | 0.12 | 31 | 88 | 39 | 1 scoop | 73 |
| ***Dim sum點心食物*** | | | | | | | | | | | | | | |
| Curry fish ball | 咖喱魚蛋 | 13 | 0.9 | 1.6 | 0.33 | 0.13 | 0.28 | 0.06 | 0.002 | 2.0 | 5.5 | 95 | 1 ball | 10 |
| Eggplant, bell pepper & fried tofu stuffed with minced dace | 煎釀三寶 | 110 | 7.1 | 7.2 | 2.1 | 1.8 | 5.5 | 1.3 | 0.022 | 6.7 | 190 | 270 | 1 piece each | 102 |
| "Stinky tofu"[*4] | 臭豆腐 | 110 | 12 | 7.7 | 0.15 | 1.0 | 3.0 | 1.7 | 0.034 | 0.60 | 98 | 270 | 1 piece | 70 |
| Spring roll | 春卷 | 110 | 3.2 | 8.8 | 0.91 | 0.6 | 7.4 | 1.3 | 0.025 | 12 | 9.1 | 180 | 1 piece | 35 |
| Deep-fried taro dumpling | 芋角 | 140 | 1.9 | 10 | 0.80 | 0.7 | 11 | 2.2 | 0.036 | 4.8 | 11 | 150 | 1 piece | 40 |
| Deep-fried meat dumpling | 鹹水角 | 150 | 2.3 | 18 | 4.0 | 0.5 | 7.2 | 2.0 | 0.021 | 6.8 | 7.7 | 100 | 1 piece | 45 |
| Baked barbecued pork puff | 叉燒酥 | 170 | 3.4 | 13 | 2.4 | 0.6 | 11 | 3.9 | 0.078 | 32 | 6.6 | 120 | 1 piece | 39 |
| Red bean pancake | 豆沙鍋餅 | 430 | 8.0 | 52 | 20 | 3.5 | 21 | 3.5 | 0.11 | 90 | 36 | 32 | 1 piece | 134 |
| Spring onion pancake | 蔥油餅 | 570 | 8.8 | 60 | 5.5 | 2.8 | 33 | 7.7 | 0.28 | 24 | 36 | 550 | 1 piece | 157 |
| Paratha | 印度薄餅 | 430 | 11 | 66 | 4.2 | 3.2 | 13 | 3.8 | 0.086 | 5.4 | 35 | 500 | 1 piece | 135 |
| **Snacks 零食** | | | | | | | | | | | | | | |
| Popcorns (popped) | 爆谷(已熟) | 830 | 7.5 | 96 | 50 | 12 | 46 | 33 | 0.045 | 0.58 | 11 | 45 | 1 bag | 166 |
| Dehydrated vegetables and fruits chips | 脫水蔬菜水果片 | 220 | 2.1 | 26 | 16 | 4.5 | 12 | 2.6 | 0.045 | 0.28 | 25 | 61 | 1 bag | 47 |
| "Fluffy" peanut candy | 花生酥糖 | 110 | 2.9 | 13 | 10 | 0.6 | 4.8 | 0.90 | 0.003 | 0.10 | 5.7 | 1 | 1 candy | 22 |

| Food items / Nutrient Parameters[*1] | | Energy (kcal) | Protein (g) | Available CHO (g) | Sugars (g) | Dietary fibre (g) | Total fats (g) | SFA (g) | TFA (g) | Chol (mg) | Ca (mg) | Na (mg) | Unit[*2] | Unit Wt[*3] (g) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sesame candy | 芝麻糖 | 61 | 1.8 | 5.6 | 4.1 | 0.6 | 3.5 | 0.52 | 0.002 | 0 | 18 | 1 | 1 candy | 12 |
| Nougat | 鳥結糖 | 52 | 0.9 | 8.2 | 4.8 | 0.4 | 1.7 | 0.46 | 0.007 | 0.66 | 9.1 | 8 | 1 candy | 12 |
| Toffee candy | 拖肥糖 | 33 | 0.3 | 4.8 | 3.4 | 0.1 | 1.5 | 0.77 | 0.016 | 1.3 | 7.7 | 13 | 1 candy | 7 |
| **Beverages 不含酒精飲品** | | | | | | | | | | | | | | |
| Red bean icy drink (Regular) | 紅豆冰(普通) | 270 | 7.9 | 49 | 36 | 6.3 | 3.6 | 1.7 | 0.039 | 6.3 | 110 | 33 | 1 cup | 329 |
| "Cendol" icy drink (Regular) | 珍多冰(普通) | 260 | 0 | 37 | 24 | 0 | 13 | 10 | 0 | 0.67 | 23 | 40 | 1 cup | 336 |
| Tri-colour icy drink (Regular) | 三色冰(普通) | 280 | 3.3 | 43 | 36 | 3.9 | 9.9 | 7.8 | 0 | 0.33 | 20 | 27 | 1 cup | 355 |
| Coffee | 咖啡 | 93 | 4.3 | 7.2 | 4.5 | Trace | 5.2 | 2.9 | 0.075 | 14 | 140 | 72 | 1 cup | 226 |
| Milk tea | 奶茶 | 98 | 4.9 | 6.9 | 6.2 | 2.5 | 5.8 | 2.9 | 0.15 | 15 | 170 | 85 | 1 cup | 223 |
| Almond drink | 杏仁霜 | 99 | 3.1 | 13 | 8.1 | 0 | 3.7 | 2.2 | 0.037 | 7.3 | 99 | 51 | 1 cup | 220 |
| "Yuan-yang" (mixed coffee milk-tea) | 鴛鴦 | 120 | 5.5 | 12 | 11 | Trace | 5.3 | 3.4 | 0.055 | 19 | 160 | 69 | 1 cup | 229 |
| Milk tea with pearl tapioca | 珍珠奶茶 | 190 | 0.8 | 30 | 14 | Trace | 7.3 | 6.5 | 0.056 | 0.18 | 6.7 | 65 | 1 cup | 269 |

*1 CHO = available carbohydrates; SFA = saturated fatty acids; TFA = trans fatty acids; Chol = cholesterol; Ca = calcium; Na = sodium. All values are rounded to the same decimal places as the limit of detection (LOD) and then to two significant figures, except for Energy and CHO (only rounded to two significant figures). Values below LOD will be reported as “0”. Values between LOD and LOQ will be reported as “Trace”.

*2 1 tbsp = 1 tablespoon = 15 ml.

*3 Unit weight (in grams) is determined by averaging the weights of the food samples of each item.

*4 All items had 10 samples paired to form 5 composites, except for the followings due to their inavilability in the market (number of items purchased): “stinky tofu” (6), filled evaporated milk (2), whipping cream (6), lard (2), hard margarine (1 with animal & vegetable fats/oils, 2 with vegetable oils). The nutrient means of “stinky tofu” and whipping cream are calculated using this formula: [(composite 1 *2) + individual sample 2 + individual sample 3 + individual sample 4 + individual sample 5]/6.