

本地食物的反式脂肪 (2012)

Trans Fatty Acids in Local Foods (2012)

業界諮詢論壇
Trade Consultation Forum

11.1.2013

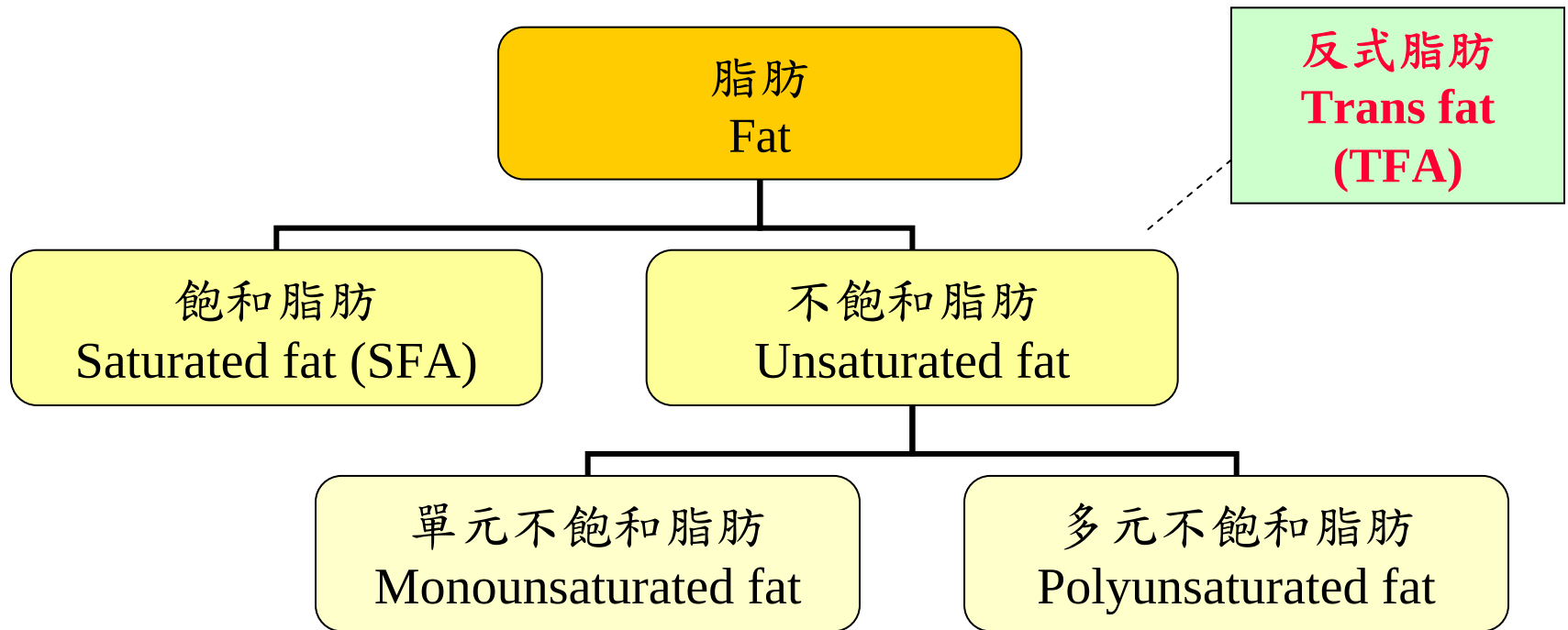
背景

Background



不同種類的脂肪

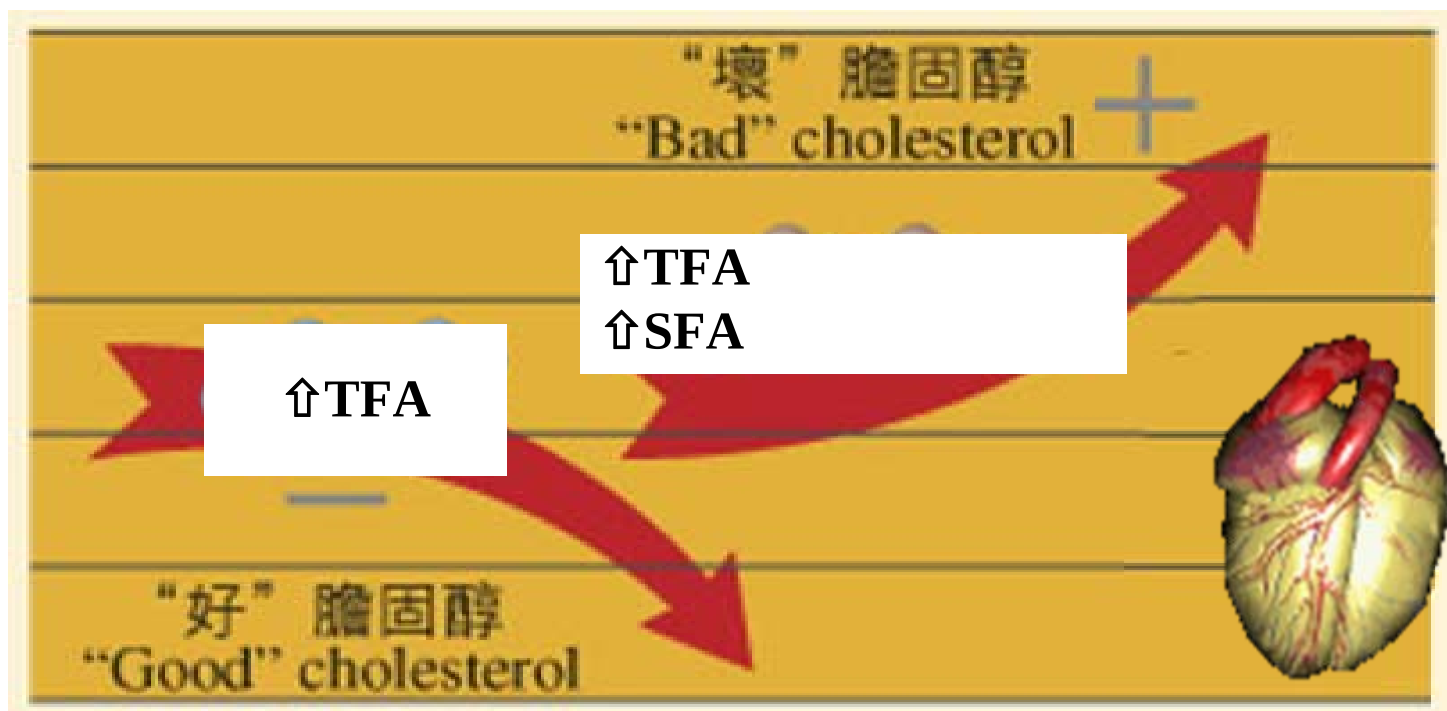
Different Types of Fat



反式脂肪增加心臟病風險

TFA Increase Risk of Heart Diseases

- 心臟病：自2001年以來本港的第二大殺手
- Heart diseases: 2nd killer in HK since 2001



世界衛生組織的建議

World Health Organization Recommendations

- 應限制來自總脂肪的能量
 - 攝入脂肪的來源，從飽和脂肪轉向不飽和脂肪
 - 逐步消除反式脂肪
-
- Energy intake from total fat should be limited
 - Fat consumption should be shifted away from saturated fat to unsaturated fat
 - Towards the elimination of trans fat



世衛/糧農組織的建議

WHO/FAO Recommendations

- 反式脂肪及飽和脂肪的攝入量應分別少於人體每天攝入能量的1%及10%
- 以每天攝入2000千卡能量的人為例
 - 反式脂肪的每天攝入量應少於2.2克
 - 飽和脂肪的每天攝入量應少於20克
- Less than 1% and 10% of daily energy intake should come from TFA and SFA, respectively
- For example, an individual with a daily energy intake of 2000 kcal
 - Daily intake of TFA should be limited to less than 2.2g
 - Daily intake of SFA should be limited to less than 20g



反式脂肪從何來？

Where do TFA Come from?

1. 在植物油的氫化過程中產生

- 延長油的保質期和增加食物的口感

2. 由不飽和脂肪在反芻動物(如牛、羊)的胃內經細菌轉化而成

- 天然存在於牛和羊的脂肪及乳製品如牛奶、牛油、芝士及忌廉等

3. 在植物油的精煉過程中產生

1. Formed during industrial hydrogenation of vegetable oils

- Extend shelf-life of oils and improve texture of food

2. Bacterial transformation of unsaturated fatty acids in the stomach of ruminants (e.g. cattle, sheep)

- Found naturally in the fats of cattle and sheep, and their dairy products (e.g. milk, butter, cheese, cream, etc)

3. Formed during refining of vegetable oils



過往與反式脂肪有關的工作 (1)

Previous TFA-related Work (1)

- 於2007、2008及2009年間，分別與消委會進行兩次聯合研究，及一次食安中心風險評估研究
- Two joint Consumer Council studies and one risk assessment study had been conducted in 2007, 2008, and 2009 respectively



過往與反式脂肪有關的工作 (2)

Previous TFA-related Work (2)

- 於2008年4月發表了《減少食物中的反式脂肪業界指引》，以鼓勵和協助業界減少食物中的反式脂肪
- A set of *Trade Guidelines on Reducing Trans Fats in Food* was released in April 2008 with a view to encourage the trade and assist them in reducing TFA content in their food products



《減少食物中的反式脂肪業界指引》

Trade Guidelines on Reducing Trans Fats in Food

- 了解食物中的反式脂肪及／或飽和脂肪來源
 - 改用較健康的替代品
 - 減低食物中的脂肪總含量
-
- Realise the source of trans and/or saturated fats in food
 - Replace with healthier alternatives
 - Reduce the total fat content of food



過往與反式脂肪有關的工作 (3)

Previous TFA-related Work (3)

- 於2012年11月發表了《降低食物中糖和脂肪含量的業界指引》，旨在協助業界生產和推廣較低脂肪含量的食物
- A set of *Trade Guidelines for Reducing Sugars and Fats in Foods* was released in November this year, to help the trade produce and promote products which have lower fat content



本港有關食品中反式脂肪的規管

Regulatory Control on TFA in Foods in Hong Kong

- 自2010年7月1日起，根據營養標籤制度，所有適用的預先包裝食物須標示反式脂肪、能量及其他6種營養素的含量。此外，有關反式脂肪的營養聲稱必須符合指定條件。
- Since 1 July 2010, according to the nutrition labelling scheme, nutrition labels setting out the content of TFA, energy and 6 other nutrients have become mandatory for all applicable prepackaged food products. In addition, nutrition claims on TFA should meet relevant specified criteria.
- 目前本港並未有特定法例限制食物中反式脂肪的含量
- There is no specific regulation that restricts the TFA content in food in HK



是次研究 The Study



目的 Objectives

- 繼續監察本地食物所含反式脂肪的情況
- 瞭解業界於過去數年在減低食物中反式脂肪含量的成效
- To continue monitoring the TFA level in local foods
- To understand the effect of the trade's effort in reducing TFA level in their products over the past few years



研究範籌 Scope of Study

下列非預先包裝食物：

- 較受市民歡迎
- 過往研究結果顯示其反式脂肪含量較高

Non-prepackaged foods that are:

- Popular in our local population
- Found to contain relatively higher levels of TFA as revealed in previous studies



方法 Method



採樣 Sampling

➤ 抽取樣本時間:

2012年6月至8月

➤ 樣本數目: **84**

➤ 地點:

快餐店、麵包店、
超市、便利店、餐廳

➤ **Sampling period:**

June to August 2012

➤ **Number of samples: 84**

➤ **Venue:**

Fast-food shops, bakery stores, supermarkets, convenient stores and restaurants



樣本 Samples

四大類別:

- 西餅/蛋糕類
- 蛋撻/批/酥皮類
- 麵包類
- 其他類別食物

4 categories:

- Cake
- Egg tart, pie and pastry
- Bread
- Others



樣本 Samples

1. 西餅/蛋糕類 (16樣本)

- 瑞士卷 (5樣本)
- 芝士蛋糕 (6樣本)
- 淨牛油蛋糕 (5樣本)

2. 蛋撻/批/酥皮類 (28樣本)

- 蛋撻 (8樣本)
- 雞批 (5樣本)
- 牛角酥(牛角包) (5樣本)
- 老婆餅 (5樣本)
- 咖哩/吞拿魚酥皮卷(5樣本)

1. Cake (16 samples)

- Swiss roll (5 samples)
- Cheese cake (6 samples)
- Pound/Plain cake (5 samples)

2. Egg tart, pie and pastry (28 samples)

- Egg tart (8 samples)
- Chicken pie (5 samples)
- Croissant (5 samples)
- Wife cake (5 samples)
- Tuna/Curry puff pastry (5 samples)



樣本 Samples

3. 麵包類樣本(16樣本)

- 椰絲奶油包 (6樣本)
- 雞尾包 (5樣本)
- 蒜蓉包 (5樣本)

4. 其他類別食物(24樣本)

- 曲奇 (5樣本)
- 冬甩/沙翁 (5樣本)
- 薯條 (9樣本)
- 酥皮忌廉湯 (5樣本)

3. Bread (16 samples)

- Cream-filled bun with shredded coconut (6 samples)
- Cocktail bun (5 samples)
- Garlic bread (5 samples)

4. Others (24 samples)

- Cookie (5 samples)
- Doughnut (5 samples)
- French fries (9 samples)
- Cream soup with puff pastry (5 samples)



測試項目 Test Items

- 反式脂肪
- 飽和脂肪
- 總脂肪
- 糖
- 鈉
- 蛋白質
- 碳水化合物
- 能量
- TFA
- SFA
- Total fat
- Sugars
- Sodium
- Protein
- Carbohydrates
- Energy



結果 Findings

I. 反式脂肪含量

TFA Content



平均反式脂肪含量 (範圍)

Mean TFA Content (Range)

類別 Food category	樣本數目 No. of samples	平均反式脂肪含量(範圍)(克/100克) Mean TFA content (range) (g/100g)
西餅/蛋糕類 Cake	16	0.41 (0.070 - 0.77)
蛋撻/批/酥皮類 Egg tart, pie and pastry	28	0.39 (0 - 1.1)
麵包類 Bread	16	0.21 (0 - 0.49)
其他類別食物 Others	24	0.19 (0 - 0.66)
整體 Overall	84	0.30 (0 - 1.1)



結果1:

四大類別(共84個)樣本的整體反式脂肪平均含量為每100克0.30克。平均含量最高類別依次為：
西餅/蛋糕類、蛋撻/批/酥皮類、麵包類、其他類別

Finding 1:

Overall mean TFA content for 4 categories (total 84) samples was 0.30g/100g.

In decreasing order: cake, egg tart/pie/pastry, bread, others



西餅/蛋糕類 Cake

類別/食品 Food item	樣本數目 No. of samples	平均反式脂肪含量(範圍)(克/100克) Mean TFA content (range) (g/100g)
淨牛油蛋糕 Pound / Plain cake	5	0.50 (0.29 - 0.68)
芝士蛋糕 Cheese cake	6	0.44 (0.20 - 0.65)
		#11 (169g@) = 1.1g TFA@ = 50% 每天攝入上限/ Daily upper intake limit
瑞士卷 Swiss roll	5	0.29 (0.070 - 0.77)
小計 Sub-total	16	0.41 (0.070-0.77)

蛋撻/批/酥皮類

Egg Tart, Pie and Pastry

食品 Food item	樣本數目 No. of samples	平均反式脂肪含量(範圍)(克/100克) Mean TFA content (range) (g/100g)
牛角酥(包) Croissant	5	0.70 (0.29 - 1.1)
咖喱/吞拿魚酥皮卷 Tuna / Curry puff pastry	5	0.70 (0.37 - 0.92)
		#44 (99g@) = 0.91g TFA@ = 41% 每天攝入上限/ Daily upper intake limit
雞批 Chicken pie	5	0.30 (0.20 - 0.36)
蛋撻 Egg tart	8	0.22 (0.040 - 0.44)
老婆餅 Wife cake	5	0.17 (0 - 0.38)
小計 Sub-total	28	0.39 (0 - 1.1)

麵包類 Bread

食品 Food item	樣本數目 No. of samples	平均反式脂肪含量(範圍)(克/100克) Mean TFA content (range) (g/100g)
椰絲奶油包 Cream-filled bun with shredded coconut	6 	0.31 (0.040 - 0.49) #50 (102g@) = 0.50g TFA@ = 23% 每天攝入上限/ Daily upper intake limit
雞尾包 Cocktail bun	5	0.19 (0.020 - 0.42)
蒜蓉包 Garlic bread	5	0.11 (0 - 0.20)
小計 Sub-total	16	0.21 (0 - 0.49)

其他類別食物 Others

食品 Food item	樣本數目 No. of samples	平均反式脂肪含量(範圍)(克/100克) Mean TFA content (range) (g/100g)
曲奇 Cookie	5	0.33 (0.040 - 0.66)
酥皮忌廉湯 Cream soup with puff pastry	5	0.28 (0 - 0.36)  #84 (244+44=288g@) = 1g TFA@ (絕大部分來自酥皮 /virtually all from pastry) = 47% 每天攝入上限/ Daily upper intake limit
冬甩/沙翁 Doughnut	5	0.16 (0.030 - 0.48)
薯條 French fries	9	0.07 (0.020 - 0.15)
小計 Sub-total	24	0.19 (0-0.66)

結果2:

部分同款同類食品的反式脂肪含量差異很大

Finding 2:

TFA content among some individual samples of the same food item varied dramatically



II. 與過往研究結果比較

Comparison with Results of Previous Studies



反式脂肪比對 (1)

Comparison on TFA (1)

類別 Food category	過往研究結果 Previous studies results		是次研究結果 Current study results		差異 Change
	樣本 數目 No. of samples	平均反式脂肪含量 (範圍)(克/100克) Mean TFA content (range) (g/100g)	樣本 數目 No. of samples	平均反式脂肪含量 (範圍)(克/100克) Mean TFA content (range) (g/100g)	
西餅/蛋糕類 Cake	12	0.56 (0.15 - 0.90)	16	0.41 (0.070 - 0.77)	-27%
蛋撻/批/酥皮類 Egg tart, pie and pastry	25	0.67 (0.025 - 1.7)	28	0.39 (0 - 1.1)	-42%
麵包類 Bread	13	0.59 (0.17 - 1.8)	16	0.21 (0 - 0.49)	-64%
其他類別食物 Others	16	0.63 (0.033 - 4.7)	24	0.19 (0 - 0.66)	-70%
整體 Overall	66	0.63 (0.025 - 4.7)	84	0.30 (0 - 1.1)	-52%

結果3:

與過往研究結果比較，四大類別食物樣本的反式脂肪平均含量，分別有大幅下降趨勢，反映出業界在減低食物中反式脂肪含量的成果

Finding 3:

As compared with the results of previous studies, there has been a large reduction in the mean TFA contents in the 4 food categories covered, reflecting the positive effect of the trade's effort in reducing TFA level in their products



反式脂肪減少了，
是否由飽和脂肪取代？
TFA simply replaced by SFA?

部分氫化植物油→完全氫化植物油？
人造牛油，起酥油→牛油，豬油？

Partially → Fully hydrogenated vegetable oils?
Margarine, Shortening → Butter, Lard?



III. 飽和脂肪含量 SFA Content



飽和脂肪比對

Comparison on SFA

類別 Food category	過往研究結果 Previous studies results		是次研究結果 Current study results		差異 Change
	樣本 數目 No. of samples	平均飽和脂肪含量 (範圍)(克/100克) Mean SFA content (range) (g/100g)	樣本 數目 No. of samples	平均飽和脂肪含量 (範圍)(克/100克) Mean SFA content (range) (g/100g)	
西餅/蛋糕類 Cake	12	10 (5.4 - 16)	16	8.9 (5.2 - 15)	-11%
蛋撻/批/酥皮類 Egg tart, pie and pastry	25	9.3 (4.5 - 16)	28	8.8 (4.6 - 17)	-5%
麵包類 Bread	13	8.5 (3.5 - 13)	16	7.0 (2.8 - 12)	-18%
其他類別食物 Others	16	6.0 (1.4 - 15)	24	4.8 (0.84 - 15)	-20%
整體 Overall	66	8.5 (1.4 - 16)	84	7.3 (0.84 - 17)	-14%

結果4:

與過往研究結果比較，個別樣本反式脂肪含量大為降低的同時，樣本的飽和脂肪含量則相若，可見減少食物中的反式脂肪而不增加飽和脂肪是切實可行的

Finding 4:

As compared with the results of previous studies, the TFA content in some individual samples has reduced dramatically whilst a similar SFA content has been maintained, reflecting that the reduction in TFA without raising the SFA content in foods is practically feasible



給業界的建議

Advice to Trade

- 避免採用氫化植物油及其產品製造食品。
- 改良製作過程或配料，以減少食物及油脂內的反式脂肪及飽和脂肪含量。
- 參考《減少食物中反式脂肪業界指引》及《降低食物中糖和脂肪含量的業界指引》，生產和推廣既健康又可供安全食用，而脂肪含量較低的食物。
- Avoid using hydrogenated oils/fats or their products in preparing foods.
- Modify the manufacturing process or ingredients to lower TFA and SFA contents in foods.
- Make reference to the ***Trade Guidelines on Reducing Trans Fat in Food*** and the ***Trade Guidelines for Reducing Sugars and Fats in Foods*** for manufacturing and promoting wholesome foods with lower fat contents.



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Experience Sharing

