



Cutting the Fat

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Cutting the Fat

- Why: Should we reduce fat?
- What: the current thinking about the good, the bad and the indifferent
- How: the technical options
- The consequences: optimising the taste

Nutritionally Modified Foods

Plus

- Macro components
 - Protein
 - Fibre
- Micro components
 - 'Active' ingredients
 - Vitamins/Minerals



Minus

- Macro components
 - Fat
 - Sugar

Benefits

- Nutrition/Calories/Caries

Caloric Contributions

- **Sugar** 3.75 cals/ 16 kJ per g
- **Protein** 4.00 cals/ 17 kJ per g
- **Alcohol** 7.00 cals/ 29 kJ per g
- **Fat** 9.00 cals/ 37 kJ per g

Why should we reduce fat content of foods

- 9 calories a gram
- Most highly dense calorie component of foods
- Often little/ no nutritional value above caloric content

WHY?

For the Calories

Focus on Fat

- **9 calories a gram**
- **Became the principal target for removal in 1970s**
- **'No Fat' Foods**
- **Quality realization**
- **By 1990s 'Reduced Fat' foods**
- **Current understanding developing of differential nutritional quality of fats**

Fat Facts

Essential fatty acids

Fat soluble vitamins

Mono/Poly unsaturated and saturates

Fat sources

- Omega 3- not all equal
- A,D & E
- All equal
- Not all equal

Coconut Fat: A Cure All?

High Lauric acid having +ve heart healthy boosting 'good' HDL

Antimicrobial quality (virus and bacteria)

Weight loss (MCT's)

Improves Alzheimer's Disease

- No evidence > HDL benefits heart health
- Bunkum (not based on fact or human studies!)
- No facts to say this is any better or worse than any other fat
- No evidence (unfortunately)

Focus on Fat

- **Provides structure/ bulk**
- **Impacts opacity**
- **Mouthcoating and flavour release**

Flavour

- A flavour is simply an admixture of chemicals providing a particular simulation and initiating recognition.
- By mixing different combinations of flavours you can end up with something which is quite different.
- Fats are an integral part of flavour perception.

Approach to Formulation

Holistic Mantra

Hue

Odour

Liquidity

Identity

Sweet and Savoury

Tartness

Intensity

Characteristic

High Water Activity Foods

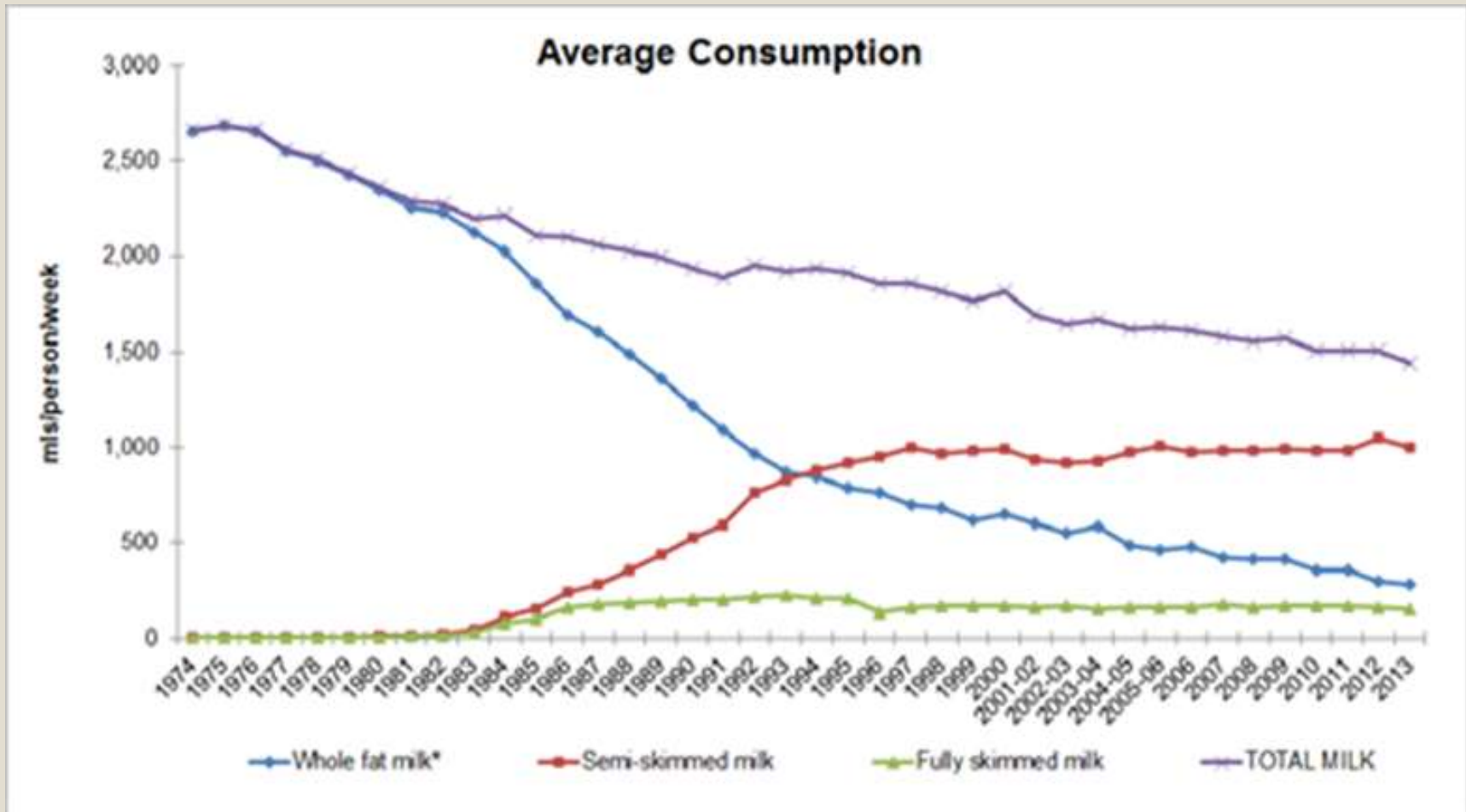
- Yogurt
- Milk
- Bread spreads
- Cheese
- Ice cream
- Dressings & Mayonnaise

Yogurt

- Original low fat dairy product
- Compromise on acidity resolved with alterative cultures
- Compromise on indulgence resolved by addition of cream



Milk Consumption



Bread Spreads

- Cream, Salt



- Water, vegetable oils (45%), BUTTERMILK, salt (1.4%), emulsifiers (mono- and diglycerides of fatty acids, sunflower lecithin), flavouring (contains MILK), preservative (potassium sorbate), citric acid, vitamins A and D, colour (carotene).



Bread Spreads



Soft Cheese



- Full Fat Soft Cheese, Salt, Stabiliser (Locust Bean Gum), Acid (Citric acid).
- 22% Fat



- Medium Fat Soft Cheese, Salt, Stabilisers (Locust Bean Gum, Carrageenan), Acid (Citric Acid).
- 11% Fat

Soft Cheese



- Low Fat Soft Cheese, Salt, Stabilisers (Carob Bean Gum, Carrageenan), Acidity Regulator (Citric Acid).
- 3% Fat

Ice Cream



**Low fat/ low sugar
Formulation and Processing
Proteins and Emulsion
technologies**

Mayonnaise



- Soybean oil, water, whole eggs and egg yolks, vinegar, salt, sugar, lemon juice, calcium disodium EDTA (used to protect quality), natural flavours.



- Water, soybean oil, modified starch (corn, potato)** , eggs, sugar, salt, vinegar, lemon juice, sorbic acid** and calcium disodium EDTA (used to protect quality), natural flavour, vitamin E.

Low Water Activity Foods

Water not an option

- Confectionery
- Cakes
- Biscuits

Chocolate Confectionery

Component	Percentage
Fat	28-32
Carbohydrate	56-64
Protein	5-8
Water	<1

Confectionery



Biscuits

Type	Percentage Fat
Shortbread	30
Cookie	25
Digestive	21
Gingernut	16
Rich Tea	14

Baked Goods



Summary

- **Protect the good fats- understand the science**
- **'Reduced' rather than 'Low'**
- **Use of structured water to replace fat in high Aw foods**
 - **Hydrocolloids**
 - **Carbohydrates & Polysaccharides**
 - **Proteins**
- **Fibres, Emulsion and Encapsulation techniques to reduce fat in low Aw foods**
- **New technologies enable quality lower fat products**
- **They dilute the fat and therefore the calories**
- **Balance the taste**



Thank you for your attention

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