

Whole milk vs fat-modified milk in the current Australian market: a comparison of nutritional content and market share

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In Australia, fresh white milk dominates the supermarket shelves, accounting for 90% of all white milk volume sales (Retail World 2009). The majority of the milk category (58%) is comprised of in-house Private Label (PL) brands, with the remaining 42% made up of several independent manufacturers. Over 2008/9, 917 million litres of milk were sold in the grocery sector. Of this, whole milk made up over half (55%), reduced-fat milk (RFM) 38%, and no-fat milk (NFM) the remaining 7% (Synovate Aztec 2009). In this article any reference to sales volume of milk, market shares and price applies to the grocery (supermarket) sector only.

Nutrient profile of milk: energy, protein, total fat, saturated fat, calcium

In the Australia New Zealand Food Standards Code whole milk is defined as containing $\geq 3.2\%$ total fat (Food Standards Australia New Zealand 2010), whereas RFM and NFM have no standard definition. For this report, the Heart Foundation has classified RFM as $\leq 1.5\%$ total fat, and NFM as $\leq 0.15\%$ total fat, in line with the conditions set out in the Code of Practice for 'reduced' and 'fat free' claims (Australia New Zealand Food Authority 1995). This paper provides an analysis of the key nutrients provided by whole milk, RFM and NFM, specifically energy, protein, total fat, saturated fat (SFA) and calcium (all per 100 g) (The Nielsen Company 2009).

It is not surprising that whole milk contained significantly more energy, total fat and SFA than RFM and NFM (Table 1, $P < 0.001$). Similarly, RFM contained significantly more of these three nutrients than NFM (Table 1, $P < 0.001$). Protein increases significantly as total fat and SFA content decreases (Table 1, $P < 0.05$). NFM contains significantly more calcium than whole milk (Table 1, $P < 0.05$), but not RFM ($P > 0.05$). Neither is the calcium content of RFM significantly different to whole milk ($P > 0.05$). PL milk was equal to branded milk for these nutrients, with the exception of protein for RFM, in which branded milk contained significantly more than PL (Table 1, $P < 0.05$).

Australian recommendations for dairy consumption and saturated fat intake

A high intake of SFA is associated with an increased risk of cardiovascular disease (National Heart Foundation of Australia (NHFA) 2009). The Australian Government recommends a SFA (including trans fat) intake of $< 10\%$ total energy (National Health & Medical Research Council (NHMRC) 2006), and the Heart Foundation recommends a SFA $< 7\%$ total energy (NHFA 2009). Currently, SFA makes up some 13–14% of the total energy intake of Australians (Australian Bureau of Statistics (ABS) 1998, NHFA 2010a), which is well above both these recommendations.

In Australia, milk is the greatest contributor to SFA intake in adults and children (ABS 1998, NHFA 2010a). Due to the notable contribution of dairy foods (milk, cheese, yoghurt) to SFA intake, the Dietary Guidelines outline that, for Australians over two years old, reduced fat varieties of dairy foods should be chosen where possible (NHMRC 2003). The Heart Foundation also supports this by recommending that the intake of SFA can be reduced by choosing reduced, low, or no-fat dairy products (NHFA 2010b). Australians should consume 2–3 serves of dairy foods each day, as they are the primary source of calcium in the diet (Kellest & others 1998).

Table 1. Content of the key nutrients in milk sold in Australian supermarkets¹

| Milk Type | n | Energy (kJ /100 g) | Protein (g/100 g) | Total Fat (g/100 g) | Saturated Fat (g/100 g) | Calcium (mg/100 g) | |
|-------------|--------------|--------------------|---------------------------------|------------------------------|------------------------------|------------------------------|----------------------------------|
| Whole | BR | 6 | 271 ± 14.2 | 3.2 ± 0.0 | 3.5 ± 0.2 | 2.3 ± 0.2 | 116.8 ± 3.5 |
| | PL | 5 | 267.4 ± 3.6 | 3.3 ± 0.1 | 3.5 ± 0.1 | 2.2 ± 0.1 | 114.4 ± 0.9 |
| | Total | 11 | 269.4 ± 10.5^a | 3.2 ± 0.1^a | 3.5 ± 0.1^a | 2.3 ± 0.1^a | 115.7 ± 2.8^a |
| Reduced fat | BR | 8 | 203.9 ± 17.4 | 3.6 ± 0.3 ^d | 1.4 ± 0.3 | 0.9 ± 0.2 | 133.4 ± 19.4 |
| | PL | 4 | 183.5 ± 11.1 | 3.3 ± 0.1 ^e | 1.3 ± 0.2 | 0.8 ± 0.1 | 114.8 ± 6.5 |
| | Total | 12 | 197.1 ± 18.1^b | 3.5 ± 0.3^b | 1.4 ± 0.3^b | 0.9 ± 0.2^b | 127.2 ± 18.3^{ab} |
| No fat | BR | 6 | 171.3 ± 18.4 | 4.1 ± 0.4 | 0.1 ± 0.0 | 0.1 ± 0.0 | 148.5 ± 19.7 |
| | PL | 2 | 149.5 ± 2.1 | 3.4 ± 0.1 | 0.1 ± 0.0 | 0.1 ± 0.0 | 121.0 ± 8.5 |
| | Total | 8 | 165.9 ± 18.6^c | 3.9 ± 0.5^c | 0.1 ± 0.0^c | 0.1 ± 0.0^c | 141.6 ± 21.2^b |

¹Data from The Nielsen Company (2009). Mean ± SD. PL – private label, BR – branded.

Different letters within a column indicate significant differences. $P < 0.001$ for energy, total fat and saturated fat. $P < 0.05$ for protein and calcium.

* d and e apply to protein differences between BR and PL only.

Market shares of milk in Australia compared to the US and UK

In the US and UK, fat-modified varieties of milk may contain different levels of total fat compared to the Australian definitions, and can take on different names such as 'skim', 'semi-skim' or 'fat-free'. To enable inter-country comparisons, the fat-modified varieties of milk have been aggregated together in this report, and labelled as 'fat-modified milk' (FMM).

Australia differs significantly from the US and UK in the proportion of FMM (vs whole milk) sold. Currently FMM makes up only 45% of the market share of milk in Australia, compared to 69% in the US and 77% in the UK (Figure 1). Historically, the US and UK had a FMM market share of approximately 45% around 1985 (US) and 1991 (UK) (Beverage Marketing Corporation 2009, Department for Environmental and Rural Affairs 2010).

If the market share of FMM in Australia was modelled on a composite of what is currently observed in the US and UK (mean FMM: 73%, whole milk: 27%), this would result in a saving of nearly 4000 tonnes of SFA in a single year (Figure 2), which would continue to cumulate annually.

Changing the ratio of whole milk to FMM in Australia: understanding the influences

To achieve the above shift in the proportion of sales of whole milk to FMM, it is important to understand what influences the type of milk Australians purchase. In a recent Heart Foundation survey of 1009 males and females aged 30–65 years, over 85% of participants who reported that they consume milk cited that fat levels (but no particular type of fat), personal/family preference, product taste, or price was the main factor that influenced type of milk purchased (NHFA 2010c).

In Australia, FMM is more expensive than whole milk (weighted mean \$1.80 vs \$1.38 per litre respectively) (Synovate Aztec 2009), which may explain, in part, the greater market share of whole milk. Conversely, in the US and UK, prices between whole milk and FMM are more comparable, and FMM holds the greater market share in both countries (Figure 1) (Kantar World Panel 2008, USDA 2008).

The average price of PL milk in Australia also remains significantly less than the branded equivalent, irrespective of the fat-type (Dairy Australia 2009). This may account for PL milk's greater market share (vs branded). The influence of price was also observed in a recent New Zealand study, in which, after a six month intervention of pricing discounts, significantly more purchases of 'healthier milk and milk products' were made when they were price discounted (vs no discount) (Mhurchu & others 2010). This effect was not sustained when the price discount was removed, strengthening the association between price and type of milk purchased.

As evidenced in the US and UK, and in the New Zealand study, when pricing is removed as a barrier to purchasing of healthier FMM, a greater proportion is purchased. Given that fat levels were reported to be one of the main influences on purchasing milk in the Heart Foundation survey, this suggests that consumers have an intent to purchase healthier FMM; however, in Australia, they may be more strongly influenced by the lower price of whole milk.

The dominance of whole milk sales in Australia infers that a large proportion of Australians are still not purchasing (and therefore not consuming) FMM, and thus not adhering to the Dietary Guidelines or Heart Foundation recommendations. Heart Foundation research found that nearly half of participants (46%) reported not knowing at what age

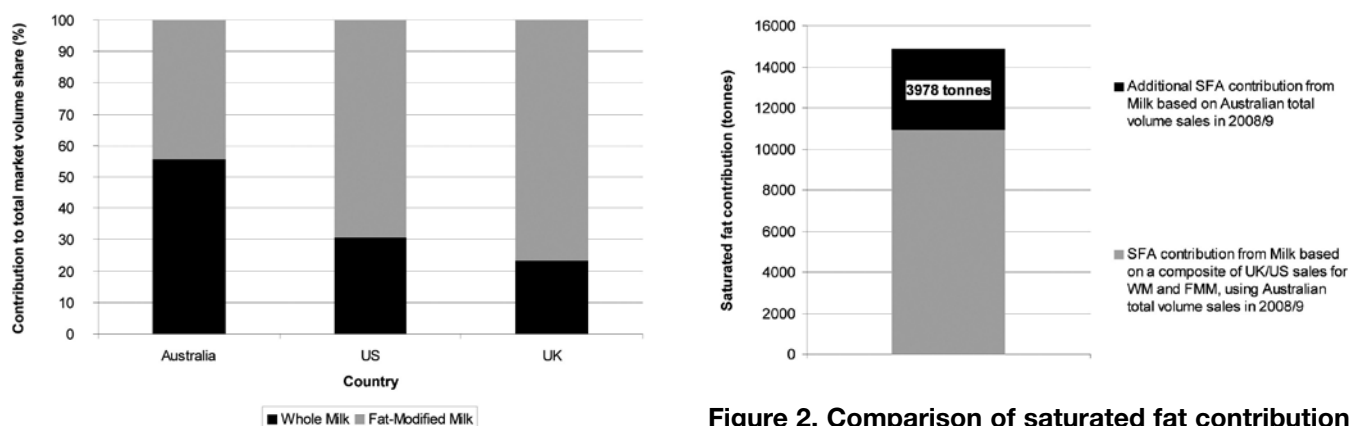


Figure 1. Comparison of grocery market shares (volume sales) held by whole milk vs fat-modified milk between Australia, US and UK in 2008. Adapted from Kantar World Panel (2008), Synovate Aztec (2009), Beverage Marketing Corporation (2009).

Figure 2. Comparison of saturated fat contribution from milk, based on grocery market shares of whole milk (WM) vs fat-modified milk in Australia in 2008/9, to a composite of the market shares of whole milk vs fat-modified milk in the US and UK in 2008, using Australian total volume sales for 2008/9. Adapted from Kantar World Panel (2008), The Neilsen Company (2009), Synovate Aztec (2009), Beverage Marketing Corporation (2009).

it is recommended that children can start drinking RFM (NHFA 2010c), highlighting a need for the development of targeted consumer messaging strategies on promoting consumption of FMM. Tailored nutrition education alone, however, has also been found not to significantly affect purchase of 'healthier milk and milk products' (Mhurchu & others 2010), reinforcing that education about the health benefits of switching from whole milk to FMM needs to occur in addition to decreasing the cost difference between them.

Concluding remarks

To increase the proportion of FMM sold (vs whole milk), there is a need to understand what factors within the Australian dairy industry and/or regulatory system are currently contributing to a difference in price between whole milk and FMM. Reducing the price disparity between whole milk and FMM, as observed in the US and UK, may remove one of the key barriers to purchasing of FMM in Australia, and support consumers' intent to make healthier choices. In addition to this, stronger consumer messaging is required to drive an increase in demand for FMM. Together, this will result in a significant reduction in the amount of SFA contributed to the Australian food supply from milk.

Data collection

The Nielsen Company (TNC) (Copyright © 2009). Nutritional information for the top 90% of all fresh, white milk products (based on volume sales, including all branded and private label products) were collected from the Nutrition Information Panels (NIPs) on the packaging of products available in national supermarket chains (excluding ALDI) by TNC, on behalf of the National Heart Foundation of Australia (NHFA). NHFA nutritional calculations are based on data collected by TNC during the requested time period (2008/9) within the Australian total grocery market. Data for fresh, flavoured milk was not collected because of its low market share, relative to fresh, white milk.

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