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20110803 - Nutritional balance of standard milk - 2008

[<Normal page] [**PEREZGONZALEZ Jose D (2008).** *Nutritional balance of standard milk.* Journal of Knowledge Advancement & Integration (ISSN 1177-4576), 2011, pages 65-68.]

Nutritional balance of standard milk

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This article offers descriptive data regarding the nutritional balance of standard milk. These data were collected for a research on milk and milk alternatives in New Zealand between 2007 and 2008 *(Perezgonzalez, 2008[1])*.

Standard (whole or full cream) milk is defined as that containing around 3.5% fat. This article, however, analyzes the nutritional balance of standard milk beyond its fat content. Indeed, the average standard milk (in this sample) is high in fat and saturated fat, but also adequate in protein, low in carbohydrate but high in sugar[4], low in fiber, and within maximum recommended limits for sodium.

On average, standard milk has a nutritional balance of BNI 86.80s, being particularly unbalanced towards excess of sugar.

Illustration 1: Nutrition information (standard milk)

BNI	**86.80s**	**0.00**
Food, 100ml	**2008**	**Ideal**
Protein	3.7	3.0
Carbohydrate	4.8	8.3
Sugar	4.8	< 1.5[4]
Fat	2.9	1.7
Saturated fat	2.0	< 0.7
Fiber	0.0	0.9
Sodium	0.043	< 0.060
Kcal	60.1	60.1
kJul	251.5	251.5

Illustration 2: Nutritional profile (standard milk)

55%						
50%						
45%			*			
40%			*			
35%			*			
30%		*	*			
25%	*	*	*			
20%	*	*	*			
15%	*	*	*			
10%	*	*	*			
5%	*	*	*			
mid	**p**	**c**	**f**		**fb**	
max		**s**	**sf**			**na**
5%		*	*			
10%		*	*			
15%		*	*			
20%		*	*			
25%		*	*			
30%		*	*			

ideal % = grey cells; actual % = asterisk (*)

International standards

Standard milk appears as highly unbalanced according to international Recommended Dietary Intakes (RDIs), although less so according to U.S. and Canada's standards, which allow for a higher content of sugars and fat.

Illustration 3: Nutritional balance across different RDIs (standard milk)						
Standard milk	**average**	**86.80**	**106.05**	**56.80**	**86.80**	**82.80**
Product 100ml	**Company**	**BNI**	**WHO**	**US/CAN**	**AUS/NZ**	**UK**
Pams whole milk powder	Pams	82.91	95.42	52.91	82.91	78.91
Meadow Fresh Junior	Goodman Fielder	86.07	97.83	56.07	86.07	82.07
Meadow Fresh Calci Kids	Goodman Fielder	86.64	106.64	42.69	86.64	68.69
Meadow Fresh Family	Goodman Fielder	86.85	97.58	56.85	86.85	82.85
Meadow Fresh Calci Strong original	Meadow Fresh	90.66	110.66	41.64	90.66	67.64
Budget milk standard	Safeway Traders	92.09	104.33	62.09	92.09	88.09
Farmgate Dairy homogenised	United Milk	92.09	104.33	62.09	92.09	88.09
Anchor Mega	Fonterra	93.36	113.36	48.61	93.36	74.61
Home Brand standard milk	Progressive	94.04	106.83	64.04	94.04	90.04
Anchor Blue top	Fonterra	95.72	106.44	65.72	95.72	91.72
(Source: Perezgonzalez, 2008[1])						

Illustration 4: Correlations between RDIs				
	BNI	**WHO**	**US/CAN**	**AUS/NZ**
WHO	.728			
(sig.)	.017			
US/CAN	.441	-.278		
(sig.)	.203	.436		
AUS/NZ	1.000	.728	.441	
(sig.)	.000	.017	.203	
UK	.441	-.278	1.000	.441
(sig.)	.203	.436	.000	.203

Correlations between indexes vary. Correlations with the BNI™ and AUS/NZ indexes are positive but not necessarily high. Yet, there also appear negative correlations between WHO and US/CAN indexes, and between WHO and UK indexes, suggesting that the nutritional balance of standard milk would be interpreted differently depending on whether the focus is on the prevention of malnutrition and disease internationally (WHO) or on normal dietary requirements for national

populations (US/CAN, UK).

Methods

Research approach

- The original research was an exploratory study on the nutritional balance of milk and milk alternatives in New Zealand in 2007-2008.

Sample

- The initial research sample included 44 milk and alternative milk products (ie, milk, soymilk and rice milk)[1]. The food products were collected in a convenient manner, looking more for a variety of brands than a random sampling of the same.
- The results in this study simply describe the 'subsample' of standard milk products within the original sample: ie, 10 brands of standard milk[3].

Materials & analysis

- Milk products were purchased from local supermarket chains in Palmerston North, New Zealand.
- Nutrition information for each milk product was retrieved from the nutritional information panel on each item, to be assessed using the Balanced Nutrition Index™ (BNI™) technology *(see Perezgonzalez, 2011[2])*.
- SPSS-v16 was used for variable computations, including BNI and international indexes, and statistical analysis, which included descriptives and correlations.

Generalization potential

Some of the products may be traded with Australia and internationally, especially UHT milk and milk solids. Thus, the results of this study may be generalizable to the following populations (in order of decreasing generalization power):

- Australia and other international exporting destinations trading New Zealand milk.
- Internationally, if one assumes milk to be of approximately similar nutritional composition anywhere.

References

1. **PEREZGONZALEZ Jose D (2008).** *Milk and milk alternatives in New Zealand in 2007-2008.* The Balanced Nutrition Index (ISSN 1177-8849), 2011, issue 3.
2. **PEREZGONZALEZ Jose D (2011).** *Balanced Nutrition Index™ (BNI™).* Journal of Knowledge Advancement & Integration (ISSN 1177-4576), 2011, pages 20-21. Also retrievable from Wiki of Science.

+++ **Footnotes** +++

3. The other categories were: semi-skimmed milk (7 items), skimmed milk (9 items), standard soymilk (4 items), low-fat soymilk (7 items), flavored low-fat soymilk (2 items), and rice milk (5 items).
4. National food agencies usually recommend ignoring non-added-sugars (other than honey, syrups and fruit juices) in order to promote the consumption of milk and fresh fruit. Therefore, this contribution as well as overall balanced nutrition index values would appear as overestimated under such practice. Indeed, when lactose is not counted as sugar, then standard milk's nutritional balance would be BNI 42.91sf (particularly unbalanced towards excess of saturated fat).

Want to know more?

BNI™ database

The database offers individual nutrition analyses for foods, including the milk and alternative milk products referred to in above article.

BNI™ journal (2011, issue 3) - Milk and milk alternatives in New Zealand in 2007-2008
This issue of the Balanced Nutrition Index™ journal collates all BNI™ nutrition information for the original sample in a single book.

Wiki of Science - Balance Nutrition Index™ (BNI™)
This Wiki of Science page offers more information about the BNI™ technology.

Wiki of Science - Nutritional balance of milk and milk alternatives
These Wiki of Science pages offer more information for other milk categories: semi-skimmed milk, skimmed milk, standard soymilk, low-fat soymilk, flavored low-fat soymilk, and rice milk.

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