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LENScience Healthy Start to Life Education for Adolescents Project: My Food, My Future

# Food Labelling:
# A Summary of Current Evidence and Practice

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Foods sold in New Zealand must be labelled according to the Food Standards Code, which was established by Food Standards Australia New Zealand (FSANZ) in 2002 and is implemented by the Ministry of Primary Industries (MPI). Food labels must include:

- Name and description of the food
- Name and address of the New Zealand distributor or manufacturer
- Advisory or warning statements
- Ingredient list
- Nutrition Information Panel
- Percentage labelling of key ingredients
- Net weight or volume
- Date marking
- Lot identification
- Directions for use and storage

All ingredients used in the production of a processed food item, including natural and synthetic food additives that extend shelf life or improve the product's appearance or taste, must be identified on the label, and listed relative to the total contribution by weight or volume (Food Standards Australia New Zealand, 2003). Providing the country of origin of a food is voluntary, and the country of origin of the ingredients, whether produced locally or imported, is not required. However, all foods must be labelled with contact details of the New Zealand manufacturer or distributor.

Foods which are unpackaged, whole or cut fresh fruit and vegetables in transparent packaging, ready-to-eat delivered-to-order, sold at fundraising events, made and packaged where sold, or packaged by the purchaser or in the presence of the purchaser do not require labelling. Certain foods are exempt from the full labelling requirements, including small food packets (e.g. chewing gum), food products for catering purposes and alcoholic beverages, herbs, spices, tea, coffee, and mineral water, unless a nutrition claim is made about these foods (Food Standards Australia New Zealand, 2003).

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## Nutrition Information Panel

The most inclusive aspect of the FSANZ food labelling system is the Nutrition Information Panel (NIP, Figure 1), which provides non-interpretive nutritional information of the food product. Non-interpretive nutritional information is generally numeric, and requires the consumer to self-interpret; interpretive nutritional information indicates the healthiness of the product, usually graphically, for the consumer.

**Apricot Muesli Bars**
**NUTRITION INFORMATION**
SERVINGS PER PACK: 6
SERVING SIZE: 31 g (1 bar)

| | **PER SERV-** | **PER 100 g** |
|---|---|---|
| ENERGY | 500 kJ | 1620 kJ |
| PROTEIN | 2.0 g | 6.6 g |
| FAT, TOTAL<br>– SATURATED | 3.2 g<br>2.1 g | 10.5 g<br>6.7 g |
| CARBOHYDRATE, TOTAL<br>– SUGARS | 19.8 g<br>6.1 g | 64.2 g<br>19.8 g |
| SODIUM | 20 mg | 65 mg |

**Figure 1:** Nutrition information panel

The NIP must include energy (kJ) and the following six nutrients: protein (g), total fat (g), saturated fat (g), total carbohydrate (g), sugars (g), and sodium content (mg), and can also include other nutrients. If a specific claim is made on the label then the amount of that nutrient must be included on the NIP e.g. if if the product is labelled as 'high in calcium', then the amount of calcium in the product must be included on the NIP. Energy and nutrient information must be displayed per 100 g or 100 mL, and per serve; the serving size and number of servings per package must also be displayed.

Whilst non-interpretive nutrition information, such as that found on the NIP, provides comprehensive detail regarding the nutritional composition of the food product, research suggests that NIP use and understanding varies amongst consumer groups (Campos, Doxey, & Hammond, 2011; Gorton, Ni Mhurchu, Chen, & Dixon, 2009; Louie, Flood, Rangan, Hector, & Gill, 2008; Ni Mhurchu & Gorton, 2007). Further, research suggests that interpretive front of pack labelling (FOPL) systems, which provide simplified, accessible descriptions of the nutritional content of the food product could help consumers make healthier food choices, and can remove disparities in understanding (Gorton et al., 2009; Hawley et al., 2013; Hersey, Wohlgenant, Arsenault, Kosa, & Muth, 2013; Kelly et al., 2009; Méjean, Macouillard, Péneau, Hercberg, & Castetbon, 2013).

## Front of Pack Labelling

Front of pack labelling (FOPL) provides quick and easily interpreted information to help consumers select healthier products. This information can be categorised into three groups:

**Non-directive FOPL**, which provides information about the core nutrients in a product and enables the consumer to determine the healthiness of the product, eg: Guideline Daily Amounts (GDA), Daily Intake Guides (DIG), NuVal;

**Semi-directive FOPL**, which provides some guidance and/or benchmarks (for example by the use of colours), but leave the interpretation of healthiness to the consumer, eg: Traffic Light Labelling, Health Star Rating;

**Directive FOPL**, which is characterised by the presence of a logo, and therefore a determined level of 'healthiness', eg: Heart Foundation Tick (Australia and New Zealand).

### Health Star Rating System

In 2012 the New Zealand Front of Pack Labelling Advisory Group developed principles following a recommendation from the Labelling Logic Report that a single, interpretive FOPL system, based on the FSANZ NPSC, be developed to meaningfully rank products according to 'healthfulness" (New Zealand Front of Pack Labelling Advisory Group, 2012). The system is expected to help consumers evaluate the nutritional value of a food item, and enable the selection of healthier food choices. The advisory group followed Australian adoption of the system, and endorsed use of the Health Star Rating system in New Zealand. In July 2014 the New Zealand government announced the adoption of this system, which consumers can expect to see appearing on food packages in early 2015.

The Health Star Rating System may use a combination of the following elements: a graphic rating of ½ to 5 stars, nutritional information icons for energy (kJ), saturated fat (g), sugars (g), sodium (mg), and one additional 'positive' nutrient such as calcium or fibre. The Health Star Rating graphic (Figure 2) provides nutrition information in an identical manner to the Australian Health Star system. As some products may not be able to display the full label due to pack or label size, these products will report Star Rating information in modified formats.

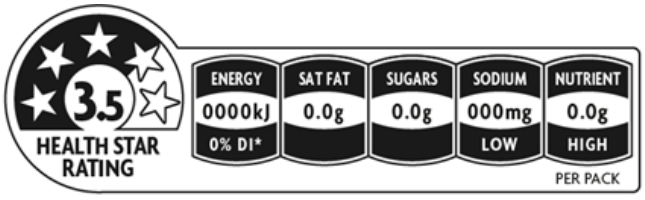



**Figure 2:** Example of the Health Star Rating graphic, reproduced with permissions from the Ministry of Primary Industries.

### *How is Health Star Rating determined?*

The Health Star Rating system provides both 'positive' and 'negative' aspects of a food, and information regarding the nutritional value of the product as a whole (New Zealand Front of Pack Labelling Advisory Group, 2012). The nutritional value of a food is rated using a mathematical algorithm, which includes four basic nutritional components: energy, saturated fat, sugars and sodium, the overconsumption of which are associated with increased risk of non-communicable disease (NCD) development (New Zealand Ministry of Health, 2003). 'Positive' components, such as fruit and vegetable content, dietary fibre and protein are also included. The amount of these components per 100 g, or mL, of the food product is included in the mathematical algorithm, and contributes to the overall Health Star Rating.

### *Is the Health Star Rating system effective in helping consumers make better food choices?*

A market research study was commissioned by the Ministry of Primary Industries (MPI) in 2013 to determine whether the Health Star Rating system can assist consumers to correctly identify healthier food choices (Colmar Brunton Social Research Agency, 2013). Participants were recruited from a market research group via either online or "street intercept" methods. Participants were recruited into a general population group (General, $n$=1,022), representative of the adult New Zealand population, and further targeted recruitment of Māori ($n$=696) and Pacific ($n$=567) groups. Due to increased prevalence of risk factors for nutrition-related NCDs in Māori and Pacific peoples (New Zealand Ministry of Health, 2013), these groups were targeted for the purposes of this study. Participants were randomly assigned to one of four conditions, a standard NIP (control), or one of three experimental conditions presented in addition to a standard NIP (Colmar Brunton Social Research Agency, 2013):

1. The Australian Health Star Rating System
2. A Star Rating only
3. A Star Rating and DIG

Participants were asked to select the healthier food choice of a pair of food products (both snack and frozen food product pairs) using one of the four conditions.

Results suggest that compared to the NIP, all FOPL conditions tested had a positive effect on the ability of research groups to select the healthier food product of the pair (Colmar Brunton Social Research Agency, 2013). Although these results suggest that FOPL assists consumers in selecting healthier food choices, this study does not evaluate the Health Star Rating

System in a "real world" setting; whether the Health Star Rating influences consumer purchasing behaviours is unknown.

**Multiple Traffic Light Labelling System**

The multiple traffic light labelling system (Figure 3) is an interpretive label that utilises a simple colour scheme to indicate relative levels of total fat, saturated fat, sugar and salt in food products, with green indicating low, amber moderate, and red high levels. A multiple traffic light labelling format was proposed by the United Kingdom (UK) Food Standards Agency in 2007 (Food Standards Agency, 2007), and adopted in 2013. A New Zealand study has shown that multiple traffic light labelling systems were most easily understood when compared with other FOPL systems, across multiple consumer groups (Gorton et al., 2009).

***How is multiple traffic light labelling determined?***

Traffic light colours are determined by a set of established standards for total fat, saturated fat, sugars and salt (Table 1 and 2; Food Standards Agency, 2007).

| Food | | | | |
|---|---|---|---|---|
| | **Low** | **Medium** | **High** | |
| **Fat** | ≤3.0 g/100 g | >3.0 to ≤20.0 g/100 g | >20.0 g/100 g | >21.0 g/portion |
| **Saturates** | ≤1.5 g/100 g | >1.5 to ≤5.0 g/100 g | >5.0 g/100 g | >6.0 g/portion |
| **Total Sugars** | ≤5.0 g/100 g | >5.0 to ≤12.5 g/100 g | >12.5 g/100 g | >15.0 g/portion |
| **Salt** | ≤0.30 g/100 g | >0.30 to ≤1.5 g/100 g | >1.5 g/100 g | >2.4 g/portion |

**Table 1:** Traffic light colour categories for food products.

| Drinks | | | |
|---|---|---|---|
| | **Low** | **Medium** | **High** |
| **Fat** | ≤1.5 g/100 mL | >1.5 to ≤10.0 g/100 mL | >10.0 g/100 mL |
| **Saturates** | ≤0.75 g/100 mL | >0.75 to ≤2.5 g/100 mL | >2.5 g/100 mL |
| **Total Sugars** | ≤2.5 g/100 mL | >2.5 to ≤6.3 g/100 mL | >6.3 g/100 mL |
| **Salt** | ≤0.3 g/100 mL | >0.3 to ≤1.50 g/100 mL | >1.5 g/100 mL |

**Table 2:** Traffic light colour categories for food and drinks, reproduced from.

### *Is multiple traffic light labelling effective in helping make better food choices?*

The "traffic light" interpretation of select nutritional components has been shown to help consumers identify healthier food products (Hawley et al., 2013); however, only 'negative' nutrients are graphically represented. Thus, this labelling system does not provide consumers with interpretive information regarding the overall healthiness of a product. As such, the multiple traffic light labelling system does not meet the set of FOPL principles developed by the advisory group (New Zealand Front of Pack Labelling Advisory Group, 2012). Additionally, research has shown that, based on the multiple traffic light labelling system, most foods classified as healthy by NPSC criteria would also display one 'red light' on the FOPL (Rosentreter, Eyles, & Ni Mhurchu, 2013).

### *Are there other ways to help consumers make healthier food choices?*

The FoodSwitch application (app), developed by The George Institute for Global Health at the University of Sydney, in partnership with Bupa Australia, is a smartphone app that allows consumers to scan the barcode of a packaged food product using the in-phone camera. FoodSwitch then presents immediate and easy-to-understand nutritional information, using the multiple traffic light system (Figure 4). The app also lists healthier options using the same multiple traffic light scheme (Bupa Australia, 2014). Food Switch is a partnership between the National Institute for Health Innovation (NIHI) at the University of Auckland, The George Institute, and Bupa New Zealand. A study to examine the effectiveness of this technology in changing food purchasing behaviour is currently underway.

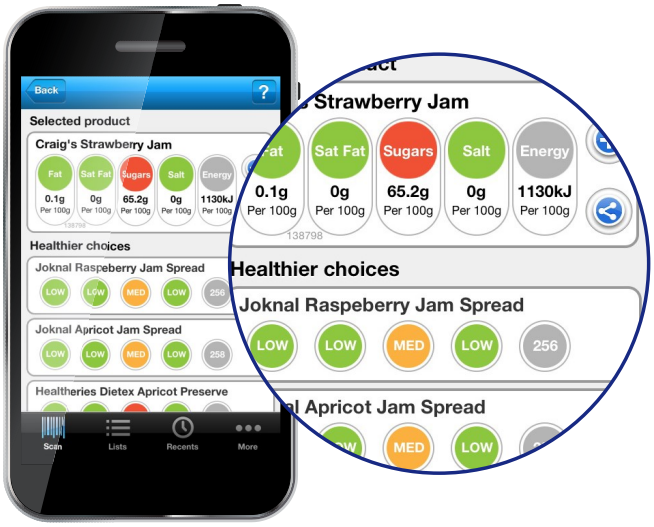



**Figure 4:** Example of FoodSwitch app nutritional information

### *What is most effective in helping consumers make healthier food choices?*

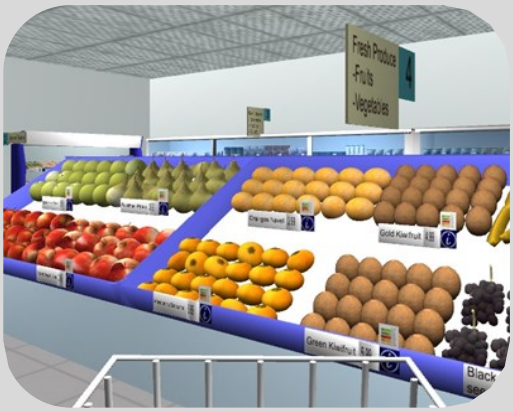
Although the multiple traffic light system has been shown to be effective in assisting consumers to identify healthier food choices (Kelly et al., 2009), studies investigating the effect of FOPL on consumer purchasing behaviours (Sonnenberg et al., 2013) (Levy, Riis, Sonnenberg, Barraclough, & Thorndike, 2012), and actual dietary intake (Hersey et al., 2013) are limited. NIHI is currently investigating the effect of FOPL on food choices and consumer purchasing behaviours.

***The Starlight Study***

NIHI is currently recruiting participants to take part in the Starlight project, which aims to assess the effect of FOPLs on consumer purchasing behaviours. A smartphone app, which scans the barcode of a packaged food and provides a FOPL for the selected product, will be used by participants when shopping. Participants will be randomly assigned to receive nutritional information about the selected product in one three FOPL styles. The consumer's food purchases will then be analysed to determine which FOPL style assists in making healthier food choices.


***The Virtual Supermarket***

The Virtual Supermarket, a web-based platform where researchers can investigate the impact of simulated price changes on consumer food purchases, is currently being developed by NIHI in collaboration with the University of Otago, Wellington and LENScience. The Virtual Supermarket will provide an avenue for researchers to model the impacts of policy changes, such as those associated with food taxes and subsidies, on the consumer.




***What is the best way to improve the diets and health of New Zealanders?***

The Dietary Interventions: Evidence & Translation (DIET) programme aims to identify the most effective and cost-efficient methods to improve the diets and health of New Zealanders (University of Auckland, 2014). Funded by the Health Research Council of New Zealand, this NIHI-led research programme will be conducted in collaboration with the Department of Public Health at the University of Otago, Wellington, the George Institute for Global Health at the University of Sydney, and the British Heart Foundation Centre on Population Approaches for Non-Communicable Disease Prevention at Oxford University. The DIET programme hopes to provide vital information on the most effective ways to support people in making healthier food choices, which could have important long-term health benefits.

## Useful web links

- **NIHI -** http://nihi.auckland.ac.nz/
- **Starlight -** http://www.diet.auckland.ac.nz/content/starlight
- **Nutrition foundation of NZ -** http://www.nutritionfoundation.org.nz/
- **LENScience -** http://lenscience.auckland.ac.nz/
- **Food Safety NZ - NZ Health Star Rating** http://www.foodsafety.govt.nz/industry/general/labelling-composition/health-star-rating/

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The resource has been developed to provide teachers with an up to date summary of evidence and practice surrounding food labelling in New Zealand.

Accompanying learning resources are found in the LENScience My Food My Future web page:
http://www.lenscience.auckland.ac.nz/en/about/teaching-and-learning-resources/MyFoodMyFuture.html


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