GI claims on foods: the Australian experience

Alan Barclay, PhD
Prologue: the Australian diabesity epidemic
Rates of overweight and obesity in Australian adults: 1980-2012

Sources: Australian Bureau of Statistics / National Heart Foundation Australia
People with diabetes in Australia 2000-2012, with projections to 2018

Source: Diabetes Australia
**Carbohydrate intake is not high**¹,²

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>1983 Male</th>
<th>Females Average</th>
<th>1995 Male</th>
<th>Females Average</th>
<th>Male Average</th>
<th>Female Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (kJ)</td>
<td>10,82</td>
<td></td>
<td>7,299</td>
<td>9,062</td>
<td>11,195</td>
<td>7,624</td>
</tr>
<tr>
<td>Total carbohydrate (g)</td>
<td>260</td>
<td>184</td>
<td>222</td>
<td>304</td>
<td>214</td>
<td>259</td>
</tr>
<tr>
<td>Total carbohydrate (%E)</td>
<td>41%</td>
<td>43%</td>
<td>42%</td>
<td>46%</td>
<td>48%</td>
<td>47%</td>
</tr>
<tr>
<td>Starches (g)</td>
<td>145</td>
<td>94</td>
<td>120</td>
<td>173</td>
<td>119</td>
<td>146</td>
</tr>
<tr>
<td>Starches (%E)</td>
<td>23%</td>
<td>22%</td>
<td>22%</td>
<td>26%</td>
<td>27%</td>
<td>26%</td>
</tr>
<tr>
<td>Sugars (g)</td>
<td>115</td>
<td>89</td>
<td>102</td>
<td>129</td>
<td>94</td>
<td>112</td>
</tr>
<tr>
<td>Sugars (%E)</td>
<td>17%</td>
<td>20%</td>
<td>18%</td>
<td>18%</td>
<td>20%</td>
<td>19%</td>
</tr>
<tr>
<td>Added sugars (g)</td>
<td>61</td>
<td>47</td>
<td>54</td>
<td>68</td>
<td>50</td>
<td>59</td>
</tr>
<tr>
<td>Added sugars (%E)</td>
<td>9%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>

Australians eating too much, or the wrong kind of carbohydrate?

- Australians already eat close to the minimum recommended amount of total carbohydrate\(^1,^3\):
  - 45 – 60 % of kJs
  - 245–325 g a day for average weight stable Australian adult

- The average dietary GI of the Australian population is relatively high\(^4\):
  - Target GI \(\leq 45\)
  - Average Australians dietary GI = 55-60

1. Cook et al. AFNMU, 2001;
Glycemic load from Australian foods: 1993-2003

Mean daily per capita GL: BMES 1 - 3

Glycemic Index Claims on Australian foods
The journey

• Consumer demand:
  Diabetes Australia research 1999-2000
  68% of members wanted GI on the label of foods


• The Glycemic Index [Foundation] Ltd incorporated in 2001.

• The GI Symbol Program launched in July 2002 with 5 products.

• The number of products that carry the GI Symbol has increased 63% per annum since
The GI Symbol Program: Making healthy choices easy choices
The GI Symbol

• Certification Trademark

• Registered in
  Australia/NZ
  North America
  EU
  Asia

• Includes nutrient profiling system
GI Symbol Program requirements

- Products must be tested by approved laboratory using the International Standard procedure.
- Products must contain $\geq 10\text{g}$ of Carbohydrate, or $\geq 80\%$ carbohydrate AND be traditionally served in multiple units of small serve sizes

- Products must meet strict nutrition criteria:
  - Energy
  - Total carbohydrate
  - Total Fat & Sat Fat
  - Sodium
  - Dietary Fibre &
  - Calcium
Example nutrient criteria

- **Breakfast cereals**
  
  *Carbohydrate:*
  Contain at least 10g per serve

  *Fat:*
  5g/100 g or less, or 5 – 10 g/100g, provided that saturated fat is ≤ 20% of the total fat content, or up to 15g/100g if the source of saturated fat is grains, seeds or nuts but not coconut

  *Dietary fibre:*
  3 g/100 g or more

  *Sodium:*
  400 mg /100 g or less
A range of iconic brands across all carbohydrate categories
Case Study: Carisma™ Potatoes

- GI = 55; average potato GI = 77
- 20% less carbohydrate
- 100% natural
- Variety, growing conditions and preparation
- Boiled, mashed and fried (low fat)
- Can be added to foods as an ingredient
Putting it into practice: using the GI is simple
The GI in the context of healthy eating

• Eat a well balanced diet that follows the Dietary Guidelines

• Don’t stop, it swap it

• Flexible to take into account personal and cultural/religious preferences

• Practical and cost effective so that an individual can comfortably adhere to it for many years to come
Educating people about choosing the right type and amount of carbohydrate

• Simply swap low GI carbs for high GI carbs within each food group or category

• This principle will lower the dietary GL
Healthy eating for weight/diabetes management: Sample meal plan for adult woman

<table>
<thead>
<tr>
<th>Time</th>
<th>Breakfast</th>
<th>Lunch</th>
<th>Dinner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>45g Muesli</td>
<td>2 x toast</td>
<td>1 1/3 Cup Spaghetti</td>
</tr>
<tr>
<td></td>
<td>1/2 cup milk (↓ fat)</td>
<td>+ Canola marg</td>
<td>Bolognaisae Sauce</td>
</tr>
<tr>
<td></td>
<td>1 x toast</td>
<td>210 g NAS Baked Beans</td>
<td>+ 2 cups salad</td>
</tr>
<tr>
<td></td>
<td>+ Canola margarine</td>
<td></td>
<td>+ vinaigrette</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Morning Tea</td>
<td>Fruit (eg, small can)</td>
<td>Afternoon Tea</td>
<td>Supper</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200 mL Fruit yoghurt (Diet)</td>
<td>Fruit (eg, 1 sml Apple)</td>
</tr>
<tr>
<td>Afternoon Tea</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supper</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Nutrient analysis of sample meal plan

<table>
<thead>
<tr>
<th>Meal</th>
<th>E (kJ)</th>
<th>Pro (g)</th>
<th>Fat (g)</th>
<th>SaFa (g)</th>
<th>CHO (g)</th>
<th>Fibre (g)</th>
<th>GI</th>
<th>Na (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>B'fast</td>
<td>1,350</td>
<td>11</td>
<td>7</td>
<td>1</td>
<td>51</td>
<td>7</td>
<td>49</td>
<td>310</td>
</tr>
<tr>
<td>MT</td>
<td>372</td>
<td>1</td>
<td>1</td>
<td>0.5</td>
<td>17</td>
<td>1</td>
<td>48</td>
<td>30</td>
</tr>
<tr>
<td>Lunch</td>
<td>1,500</td>
<td>14</td>
<td>6</td>
<td>1</td>
<td>58</td>
<td>13</td>
<td>47</td>
<td>368</td>
</tr>
<tr>
<td>AT</td>
<td>420</td>
<td>10</td>
<td>0.5</td>
<td>0.2</td>
<td>12</td>
<td>0</td>
<td>14</td>
<td>115</td>
</tr>
<tr>
<td>Dinner</td>
<td>1,830</td>
<td>28</td>
<td>12</td>
<td>3.6</td>
<td>49</td>
<td>7</td>
<td>46</td>
<td>250</td>
</tr>
<tr>
<td>Supper</td>
<td>240</td>
<td>0.3</td>
<td>0.1</td>
<td>0</td>
<td>13</td>
<td>2.2</td>
<td>38</td>
<td>64</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>5,712</strong></td>
<td><strong>64</strong></td>
<td><strong>27</strong></td>
<td><strong>6</strong></td>
<td><strong>200</strong></td>
<td><strong>30</strong></td>
<td><strong>45</strong></td>
<td><strong>1,137</strong></td>
</tr>
</tbody>
</table>

• Comparison to key recommended intakes:

  - **Protein** = 64 g (0.76g/kg or 19% of energy)
  - **Total Fat** = 27 g (18 % of energy)
  - **Saturated Fat** = 6 g (4% of energy)
  - **Carbohydrate** = 200 g (56% of energy)
  - **Fibre** = 30 g (5g/1000kJ)
  - **GI** = 45
  - **Na** = 1,137 mg (920 – 2300)
GI Claims within Australian Food Standards
The Australian Standard

• Standards Australia approached by GIF in 2003
• Working party convened in 2004:
  Scientists from the GI Foundation, CSIRO and AFGC
• Published in 2007 as
  Australian Standard®
  Glycemic index of foods
  AS 4694—2007
Australia and New Zealand Food Standards Code

• Work commenced on new Nutrition, health and related claim legislation in Aug 2004

“...believed that provisions should probably be made for carbohydrate claims. Some members also believed that Glycaemic Index and Glycaemic Load were nutrition content claims because they specifically related to foods, rather than to health outcomes...TEG therefore believed that FSANZ should seek comment on providing criteria for ‘low’, ‘reduced’ and ‘high’ carbohydrate claims as well as criteria for Glycaemic Index and Glycaemic Load.”
Australia and New Zealand Food Standards Code

• Final draft of Nutrition, health and related claims published in 2008

• The GI method:

“…the method for determining glycemic index of carbohydrates in foods is not prescribed in the draft Standard however an editorial note describes the preferred method for determining GI, that is using the Standards Australia Australian Standard® Glycemic Index of foods (AS 4694 – 2007) which is a voluntary standards scheme.”
Definition:

“glycemic index (GI) means the property of the carbohydrates in different foods, specifically the blood glucose raising ability of the digestible carbohydrates in a given food.”

Listed as a nutrition content claim, with special conditions:

<table>
<thead>
<tr>
<th>Glycemic Index</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>(a) the numerical value of the glycemic index of the food is indicated at 55 and below.</td>
</tr>
<tr>
<td>Medium</td>
<td>(a) the numerical value of the glycemic index of the food is indicated between 56 and 69.</td>
</tr>
<tr>
<td>High</td>
<td>(a) the numerical value of the glycemic index of the food is indicated at 70 and above.</td>
</tr>
</tbody>
</table>

Gazetted Jan 2013
Example generic claim

Carman's Real food made with real passion.

Classic Fruit & Nut Muesli
Oven baked muesli with sweet juicy fruits and a blend of honey roasted almonds and hazelnuts

- Low GI
- High in fibre
- Naturally sweetened with honey

100% Australian made and owned 500g NET
Consumer Research
Consumer Research

Baseline survey of Australians - Jan 2002


- 2002-04: Telephone survey – Newspoll and Ozinfo
- Five Australian mainland capital cities
- Random Sample of Main grocery buyers 18+ years
- 2012: 1,502 (709 ♂; 793 ♀) respondents
Awareness of GI is high

- 77% of Australians are aware of the Glycemic Index
  - 70% of those understand the GI is about blood sugars and energy
  - 69% likely to use the GI rating when choosing food

- Greatest awareness amongst:
  - Females (Over 80%)
  - 25-39 year age group, generally married with young children
  - 50+ age group

Awareness has grown from 28% since the GI Symbol program launched

Nielsen & Co 2012
GI is understood by consumers

Those aware of the glycemic index have a good understanding of its benefits

- Providing sustained energy
- Good for weight loss and management
- Good for children’s health and wellbeing
- Useful for preventing heart disease
- Useful for exercise endurance

The benefits of the GI are relevant to groups across the community and across life-stages

Source: Nielsen & Co. 2012
Growing Awareness of the new GI Symbol

- 37% of Australians are aware of the GI Symbol
  - Introduced in 2009

- More than 80% of those aware believe the Symbol shows that the foods are:
  - Healthy, wholesome and a good choice
  - Scientifically tested
  - Provide sustained energy/glucose release

There is a big opportunity ...
84% of those aware of GI are likely to use the GI Symbol when shopping – when the GI Symbol has been explained

Source: Nielsen & Co. 2012
The GI Symbol is a good shopping tool

Percentage of people who think the GI symbol is a useful shopping tool

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not know</td>
<td>22%</td>
</tr>
<tr>
<td>No</td>
<td>78%</td>
</tr>
<tr>
<td>Yes</td>
<td>0%</td>
</tr>
</tbody>
</table>

Likelihood of switching to a brand that carries the GI symbol

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very or somewhat</td>
<td>45%</td>
</tr>
<tr>
<td>Likely</td>
<td>0%</td>
</tr>
<tr>
<td>Unlikely</td>
<td>5%</td>
</tr>
</tbody>
</table>

9 out of 10 people with diabetes want GI information on pack

The GI Symbol is by far the most popular existing front of pack labeling scheme for p/w diabetes

“The GI Symbol was identified as one of the most widely recognised food endorsement schemes”

Nick Stace, CEO Choice, 2010

Source: Nielsen & Co, 2012; Diabetes Australia 2009
The International Standard

• Standards Australia took Australian Standard to International Standards Organisation in 2005

• Working party convened in 2006: Scientists from around the globe

• Published in 2010 as ISO 26642:2010

Food products - Determination of the glycaemic index (GI) and recommendation for food classification
Summary

➢ We need a global food and nutrition strategy to address the diabesity pandemic

➢ Decreasing the average dietary glycemic index should be part of that strategy

➢ It is possible to identify and promote healthy low GI foods to the general population

➢ The GI Foundation and its GI Symbol has worked down under, and its ready to be rolled out globally…
Further information

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Facebook: http://www.facebook.com/GlycemicIndex
USDG’s, GI and diabetes

“Evidence is mixed as to whether there is an association between a high glycemic index and type 2 diabetes (T2D). Little evidence suggests that a high glycemic load is associated with T2D. This conclusion is based on 10 longitudinal prospective observational studies published since 2000 (Barclay, 2007; Halton, 2008; Hodge, 2004; Krishnan, 2007; Mosdol, 2007; Sahyoun, 2008; Schulz, 2006; Schulze, 2004; Stevens, 2002; Villegas, 2007). No randomized controlled trials (RCTs) were reported. Of the 10 prospective observational studies, glycemic index was positively associated with T2D in five reports (Halton, 2008; Krishnan, 2007; Schulz, 2006; Schultze, 2006; Villegas, 2007). Four other longitudinal studies reported no association of glycemic index with T2D (Barclay 2007; Mosdol 2007; Sahyoun 2008; Steven 2002). One longitudinal study reported an inverse association (Hodge, 2004).”