
David C K Roberts PhD

With acknowledgements to
Professor Amanda Lee, Queensland University of Technology
Professor Janet King, UC Davis
Outline

• Policy background
• The context
• The Evidence Report
  • Grading the evidence
  • Evidence statements
• The food modelling system
• Translating the guidance
• Thoughts for the future
Scientific literature –
Animal, in vitro and human experiments;
human population studies

Nutrient Reference Values
Nutrients by age, gender etc

Dietary Guidelines
Food groups and eating/lifestyle behaviours

Dietary modelling to translate nutrient needs into food patterns

Healthy Eating Guide
How much of what foods

Cuisine/ current dietary intake

Enviro/ socio-economic factors
### The Australian context

<table>
<thead>
<tr>
<th>Political context</th>
<th>Food reality</th>
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<tbody>
<tr>
<td>Agriculture</td>
<td>Wheat and Meat exporter</td>
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<tr>
<td>Health Economics</td>
<td>Diet related chronic disease</td>
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<td>Sustainability</td>
<td>Climate change</td>
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<tr>
<td>Aspirational</td>
<td>What about me and the foods I like</td>
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</tbody>
</table>
The Australian Plan

Core Objectives
- Aspirational
- Realistic and practical
- Evolutionary (incremental rather than radical)
- Based on best available scientific evidence re food, diet and health relationships

Additional Objectives
- Consultative
- Acknowledges multiple stakeholders
- Progressive but not revolutionary
The Inputs to the process

Dietary intakes from National surveys

Authoritative reports & additional literature

Nutrient Reference Values for Australia and New Zealand Including the Recommended Dietary Intakes (2005)

Food Modelling System to inform the *Australian Guide to Healthy Eating* (2010)


Dietary guidelines for all Australian (2003)

Evidence Report to inform the review of the Australian Dietary Guidelines

Draft Australian Dietary Guidelines (2011)

Draft Pregnant and breastfeeding women literature review (2011)
Australian Evidence Process

Commissioned systematic approach to review of scientific papers published between 2002 and 2009

Developed a set of targeted questions review to help answer the question: “What should Australians eat?”

Prioritised questions to focus on new and emerging issues since 2003 (did not re-examine established associations)

Evidence statements only formulated where > 5 studies were included

Evidence Report > 1,100 pages and >55,000 papers

Final harmonisation with assistance of methodologist

Informed both revised Food Modelling System and Dietary Guidelines
US Evidence process

Develop research questions
Create and implement literature search
Develop evidence portfolios
Synthesize the bodies of evidence
Develop conclusion statements and grade the evidence
Describe research recommendations

* From Spahn, JM et al., J Am Dietet Assoc 2011;
The Australian Reviews

- **Systematic reviews**, considering primary evidence from epidemiological and experimental studies, as well as reviews and meta analyses (but excluding editorial and other grey literature);
- **Umbrella reviews**, which only included reviews and meta analyses; and
- **Narrative reviews**, which also included information from secondary sources such as government reports- more descriptive.
S.1.1. Does the evidence suggest a particular maximum and/or minimum level of consumption of specific foods including:
- Fruit;
- Vegetables;
- Meat;
- Dairy (cheese, milks and yoghurt);
- Cereals/grains;
- Legumes;
- Nuts and seeds;
- Fish;
- Poultry;
- Eggs;
- Fat/oil;
- Salt/sodium;
- Sugars;
- Beverages (including water); and
- Alcohol;
is beneficial/detrimental in respect to:
- Chronic diseases including:
  - Obesity;
  - Cardio Vascular Disease (including hyperlipidemias);
  - Stroke;
  - Diabetes;
  - Cancer;
  - Hypertension;
  - Chronic Obstructive Pulmonary Disease;
  - Eye-health;
  - Bone health;
  - Dental health; and
  - Mental health;
- Environmental impacts (over the life of the food, i.e. production, packaging, distribution, consumption, waste products);
- Social equity; and
- Health and well being (Life Expectancy/ DALY/QALYs)?

<table>
<thead>
<tr>
<th>SYSTEMATIC LITERATURE REVIEW - ASSESSING THE PRIMARY LITERATURE</th>
<th>POPULATION</th>
<th>INTERVENTION</th>
<th>COMPARATOR</th>
<th>OUTCOME</th>
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<tbody>
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<td>General population, excluding those with serious medical conditions, in the following subgroups:</td>
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<td>- infants aged 0-6 months and 7-12 months;</td>
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<td>- children aged 1-3 yrs and 4-8 yrs;</td>
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<td>- boys aged 9-13 yrs and 14-18 yrs;</td>
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<td>- girls aged 9-13 yrs and 14-18 yrs;</td>
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<td>- men aged 19-30 yrs, 31-50 yrs, 51-70 yrs and &gt; 70 yrs;</td>
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<td>- women aged 19-30 yrs, 31-50 yrs, 51-70 yrs and &gt; 70 yrs;</td>
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<td>- pregnant women aged 14-18 yrs, 19-30 yrs and 31-50 yrs; and</td>
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<td>- lactating women aged 14-18 yrs, 19-30 yrs and 31-50 yrs.</td>
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<td>Particular maximum and/or minimum level of consumption of specific foods including</td>
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<td>- Fruit;</td>
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<td>- Vegetables;</td>
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<td>- Dairy (cheese, milks and yoghurt);</td>
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<td>Levels of consumption.</td>
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### 9.2 FISH and DEMENTIA

**Does a particular intake of fish affect the risk of dementia in adults?**

**Evidence statement**
Consumption of fish more than once per week is associated with a reduced risk of developing dementia in older adults.

**Grade**
B

<table>
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<tr>
<th>Component</th>
<th>Rating</th>
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<tr>
<td>Evidence Base</td>
<td>Good</td>
<td>Several Level II and III-2 studies (7 cohorts 4O, 3P) with 2 systematic reviews (1P, 1O that included the 3 cohort studies that were the same, but for different outcomes) with low to moderate risk of bias.</td>
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<tr>
<td>Consistency</td>
<td>Good</td>
<td>Highly consistent that there is weak to moderate effect of fish consumption (at least once a week versus none) on reducing risk for total dementia (All Protect, 2 for NON-APOE carriers only; None showed an increased risk).</td>
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<td>Clinical impact</td>
<td>Good</td>
<td>Protective OR was in range 0.30 (0.1-0.9) to 0.73 (0.52-1.03) but No Effect for specific vascular DM 0.7 (0.2-2.8), significant P for trend (5 cohorts &amp; both systematic reviews). No effect for APOE carriers. No effect for fried fish on pre-clinical indicators.</td>
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<tr>
<td>Generalisability</td>
<td>Good/Excellent</td>
<td>Populations in body of evidence can be contextualised to older Australian men and women (≥50 years).</td>
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<tr>
<td>Applicability</td>
<td>Excellent</td>
<td>Directly applicable to mid-aged to older adults.</td>
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US process similar

Quality
- Scientific rigor & validity
- Study design & execution

Quantity
- Number of studies
- Number of subjects in studies

Consistency of findings across studies

Impact
- Importance of studied outcomes
- Magnitude of effect

Generalizability to the population of interest
Grading the evidence

**Australian process**
Grade A - Excellent for both evidence base and consistency
Grade B - Excellent or Good for both evidence base and consistency
Grade C - Good or Satisfactory for both evidence base and consistency
Grade D - Satisfactory or Poor for both evidence base and consistency

**US process**
Strong
Moderate
Limited
Expert Opinion
Grade Not Assignable

Outline

• Policy background
• The context
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• The food modelling system
• Translating the guidance
• Thoughts for the future
The Food Modelling System

Translated Nutrient Reference Values into food models (dietary patterns) to inform the Australian Guide to Healthy Eating and the Australian Dietary Guidelines

Foundation Diets:

Dietary patterns that meet nutrient requirements within energy requirements of smallest/least active members of age/gender group comprising the ‘core’/5 ‘food group’ foods plus an allowance of unsaturated spreads or oils and/or the nuts/seeds from which they are produced.

Total Diets:

Foundation Diets plus additional choices to meet energy needs

Additional choices:
More ‘core’/5 food group foods &/or more of allowance of unsaturated spreads or oils and/or the nuts/seeds from which they are produced &/or Discretionary Foods.
Translating the guidance
Companion resources

- Interactive Website
  - Daily energy needs calculator
  - Daily nutrient requirements calculator
  - Number of Serves calculator
  - Food Balance game
  - Order forms for all resources

http://www.eatforhealth.gov.au
dietaryguidelines @nhmrc.gov.au
The key issue

Few follow the guidance in Australia or the USA.

“The challenge now is to ensure that these Guidelines – particularly the renewed emphasis on achieving and maintaining a healthy weight – are strongly promoted within a context that encourages and supports more nutritious food choices, dietary patterns and healthy lifestyles within the community.”
Australian dietary guidelines committee Chair - Professor Amanda Lee

“To move toward this vision, all segments of society—from parents to policy makers and everyone else in between—must now take responsibility and play a leadership role in creating gradual and steady change to help current and future generations live healthy and productive lives”.
US DGAC 2010
Some thoughts on the way forward

Separate the evidence assessing teams from the risk assessment teams
Involve risk communication experts to translate the risk assessment outcomes
Simplify messaging, involve behavioural scientists
Engage communication specialists early in the process
Retain lessons learnt from previous process to inform future revisions
Remember food is to be enjoyed
1. To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs.
   (Specific guidance for children, adolescents and older Australians)

2. Enjoy a wide variety of nutritious foods from these five groups every day:
   - plenty of vegetables, including different types and colours, and legumes/beans
   - fruit
   - grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley
   - lean meat and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans
   - milk, yoghurt, cheese and/or their alternatives, mostly reduced fat (reduced fat milks are not suitable for children under 2 years)

   …and drink water

3. Limit intake of foods containing saturated fat, added salt, added sugars and alcohol.

   a. Limit intake of foods containing saturated fat such as many biscuits, cakes, pastries, pies, processed meats, commercial burgers, pizza, fried foods, potato chips and crisps and other savoury snacks.
Replace high fat foods which contain predominantly saturated fats such as butter, cream, cooking margarine, coconut and palm oil with foods which contain predominantly polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado.

Low fat diets are not suitable for children under the age of 2 years.

3b) Limit intake of foods and drinks containing added salt.
- Read food labels to choose lower sodium options among similar foods.
- Do not add salt to foods in cooking or at the table.

3c). Limit intake of foods and drinks containing added sugars such as confectionary, sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks.

3d). If you choose to drink alcohol, limit intake.
- For women who are pregnant, planning a pregnancy or breastfeeding, not drinking alcohol is the safest option.
ADG 2013 cont’d

4. Encourage, support and promote breastfeeding.

5. Care for your food; prepare and store it safely.