

Consumer Guidance on Carbohydrate Intake

ILSI and Grains & Legumes Nutrition Council
Carbohydrate intakes- high, low or irrelevant?

19 March 2013

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Consumer Guidance on Carbohydrate Intake: Overview

- What should Australians eat?
- Guidance from whom?
- Revised NHMRC Australian Dietary Guidelines
 - Evidence base
 - Consumer messages on foods and drinks containing carbohydrates
- Challenges
- New tools and resources

What should Australian's eat?

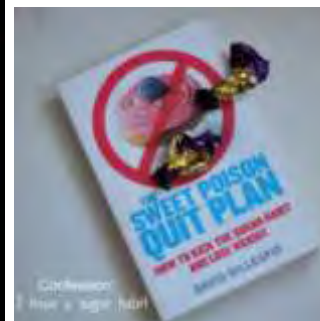
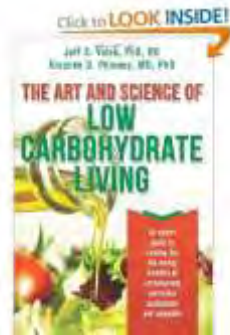
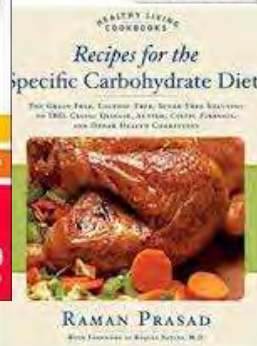
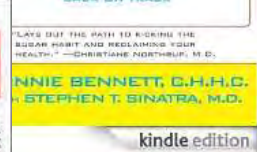
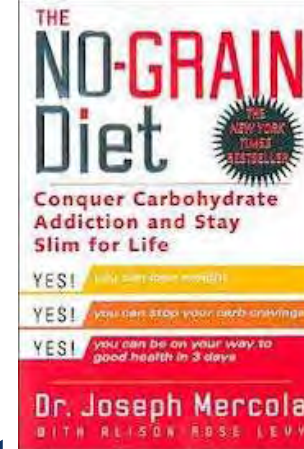
- Population level guidance
- Must be practical and realistic
 - Focus on foods, food groups and dietary patterns
 - Not on nutrients or food components or mechanisms
 - Focus on the whole diet
- Ideally should be:
 - Evidence-based
 - Objective
 - Independent
 - From a reputable source



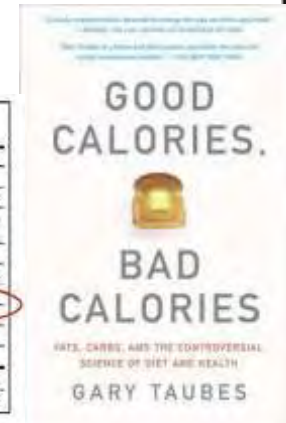


Who's guidance?

- Consumers are confused
- Multiple sources of information:
 - Internet, TV and popular press
 - Latest headlines
 - Latest book, gimmick, magic bullet
- Need to cut through the “noise”



| Nutrition Facts | |
|-----------------------------|---------------|
| Per 90 g serving (2 slices) | |
| Amount | % Daily Value |
| Calories 170 | |
| Fat 2.7 g | 4 % |
| Saturated 0.5 g | |
| + Trans 0 g | 5 % |
| Cholesterol 0 mg | |
| Sodium 200 mg | 8 % |
| Carbohydrate 36 g | 13 % |
| Fibre 6 g | 24 % |
| Sugars 3 g | |
| Protein 8 g | |
| Vitamin A 1 % | Vitamin C 0 % |
| Calcium 2 % | Iron 16 % |



Revised NHMRC Australian Dietary Guidelines

- Evidence base: 5 key sources of evidence
 1. The Evidence Report- over 55,000 papers were systematically reviewed (2002-2009)
 2. The NHMRC NRVs
 3. The Food Modeling System
 4. Previous DGs and supporting documentation
 5. Key authoritative government reports and quality evidence reviews (particularly from 2009)

The Evidence Report

- Developed a set of targeted questions to help answer systematically :
“What should Australians eat?”
- Priority focus on new and emerging issues including:
 - Food- diet-health-disease inter-relationships
 - Physical activity, weight gain and dietary energy balance
 - Economic, physical and psychosocial barriers and enablers to healthy eating
 - Current and past national food selection guides
- > five quality studies required to inform evidence statements
- > 1,100 pages and covers >55,000 papers.
- Presents:
 - evidence statements, grades and components
 - summary of studies
 - cited references of included and excluded studies



The Evidence Report

Example of a complex research question for Literature Review

| QUESTION SYSTEMATIC LITERATURE REVIEW - ASSESSING THE PRIMARY LITERATURE | POPULATION POPULATION | INTERVENTION INTERVENTION | COMPARATOR COMPARATOR | OUTCOME OUTCOME |
|---|--|---|-------------------------------|---|
| <p>S.1.1. Does the evidence suggest a particular maximum and/or minimum level of consumption of specific foods including:</p> <ul style="list-style-type: none"> • 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; <p>is beneficial/detrimental in respect to:</p> <ul style="list-style-type: none"> • Chronic diseases including: <ul style="list-style-type: none"> - 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)? | <p>General population, excluding those with serious medical conditions, in the following subgroups:</p> <ul style="list-style-type: none"> • infants aged 0-6 months and 7-12 months; • children aged 1-3 yrs and 4-8 yrs; • boys aged 9-13 yrs and 14-18 yrs; • girls aged 9-13 yrs and 14-18 yrs; • men aged 19-30 yrs, 31-50 yrs, 51-70 yrs and > 70 yrs; • women aged 19-30 yrs, 31-50 yrs, 51-70 yrs and > 70 yrs; • pregnant women aged 14-18 yrs, 19-30 yrs and 31-50 yrs; and • lactating women aged 14-18 yrs, 19-30 yrs and 31-50 yrs. | <p>Particular maximum and/or minimum level of consumption of specific foods including</p> <ul style="list-style-type: none"> • 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. | <p>Levels of consumption.</p> | <ul style="list-style-type: none"> • Risk of chronic diseases including: <ul style="list-style-type: none"> - 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)? |

Example of a relevant entry in the Evidence Report

6.3 CEREALS and CARDIOVASCULAR DISEASE

| | | |
|--|--|--|
| <i>Does the consumption of particular levels of cereal foods affect the risk of CVD in adults?</i> | | |
| Evidence Statement | Consumption of cereal foods (especially wholegrains and those with fibre from oats or barley) is associated with a reduced risk of cardiovascular disease in adults. | |
| Grade | B | |
| Component | Rating | Notes |
| Evidence Base | Excellent | 2 Level I studies (1 meta-analysis of 10 RCTs and one systematic review of 14 RCTs, 9 cohort and 5 cross-sectional studies); 5 Level II studies; 10 Level III studies. |
| Consistency | Good | Most studies consistent (14 Protect, 3 No effect, None increased risk). |
| Clinical impact | Good | Substantial protective OR of cereals (total, wholegrain or cereal fibre) in meta analyses and cohort studies of around 30% reduction in CVD risk. |
| Generalisability | Good | Populations studied in the body of evidence are similar to the target audience of the guidelines. |
| Applicability | Good | Applicable to Australian healthcare context with few caveats. |

The Food Modelling System

- Translates Nutrient Reference Values into dietary patterns
- Lacto-ovo vegetarian, omnivorous, “pasta-based” and “rice-based”
- Foundation Diets:
 - meet key nutrient requirements (RDIs) within energy requirement of smallest (youngest)/least active members of each age/gender group
 - comprised of ‘5 ‘food group’ foods- healthier choices
 - plus an allowance for unsaturated spreads or oils
- Total Diets:
 - Foundation Diets plus Additional Choices to meet energy needs
- Additional Choices:
 - more foods and drinks from the 5 food group foods &/or
 - more of the allowance of unsaturated spreads or oils and the foods from which &/or
 - *Discretionary Foods* high in saturated fat, added sugar, added salt &/or alcohol



The Food Modelling System

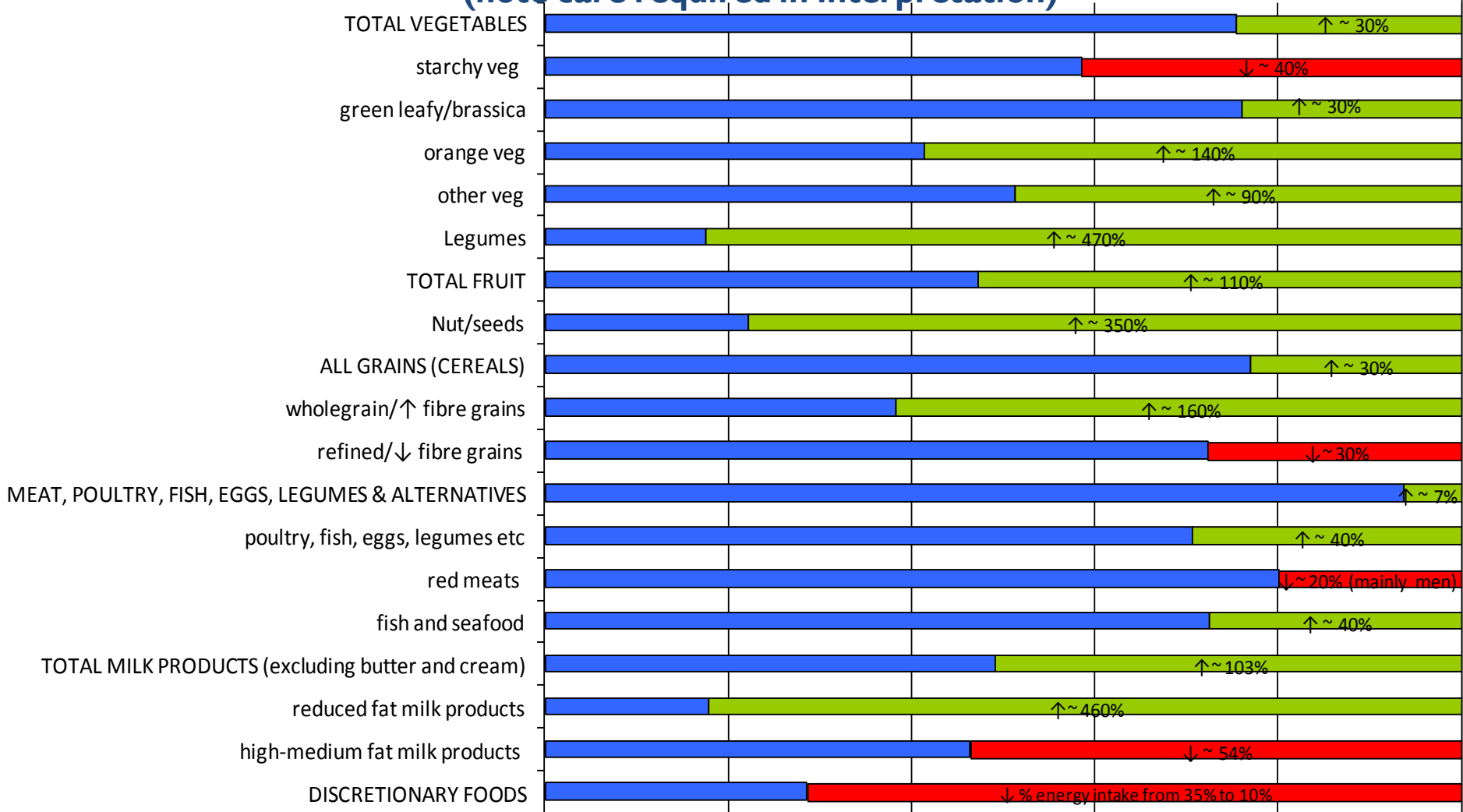
- Carbohydrate containing foods in the modelling system:
 - Composition of composite foods based on results of evidence review
 - Grain (cereal) foods serve size: one slice bread (40g)
 - 2/3 of all grain (cereal) foods needed to be wholegrain varieties to meet key RDIs
 - Number of serves grain (cereal) foods for adults: 3-6 per day
 - Outputs: AMDR Carbohydrate 45%-65%
- Limited scope within energy requirements for the smallest (youngest), least active people in each age and gender group to consume ANY Additional Choices
- Implications for achieving/maintaining a healthy weight



The Food Modelling System

- Foods we should eat **more** of:
 - Vegetables and legumes/beans (a variety of different coloured vegetables)
 - Fruits
 - Wholegrain (cereal) foods e.g. wholegrain breakfast cereals and wholemeal bread
 - Milk, yoghurt, cheese - preferably reduced fat varieties (except for children under 2 years)
 - Legumes/beans
 - As a group: fish, seafood, poultry, eggs, nuts and seeds, and legumes/beans
 - Red meat (young women only)
- Foods we should eat **less** of:
 - Refined grain (cereal) foods e.g. white bread
 - Starchy vegetables (e.g. potatoes- crisps and chips!)
 - High and medium fat milk, yoghurt and cheese
 - Red meats (adult males only)
 - Discretionary foods and drinks- high in energy (kilojoules) &/or saturated fat &/or added sugars &/or added salt &/or alcohol

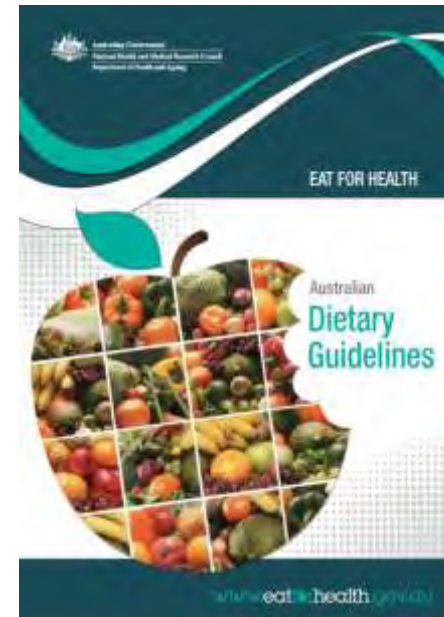
Approximate change in average adult dietary intake (1995 NNS) to meet modelled omnivorous dietary patterns (note care required in interpretation)



Dietary Guidelines

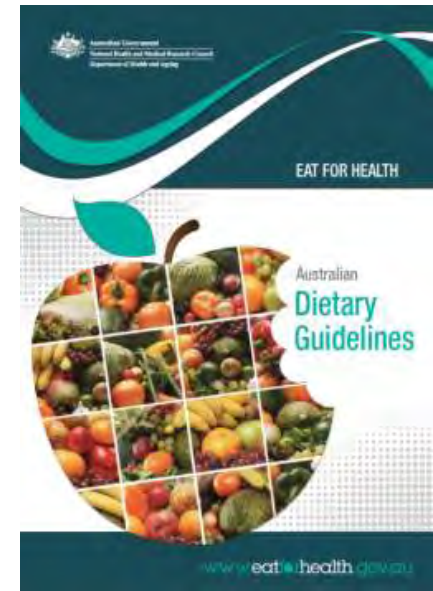
1. To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs.
 - (Specific guidance for children, adolescents and older Australians)
2. Enjoy a wide variety of nutritious foods from these five groups every day:
 - plenty 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



Dietary Guidelines

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.



Dietary Guidelines

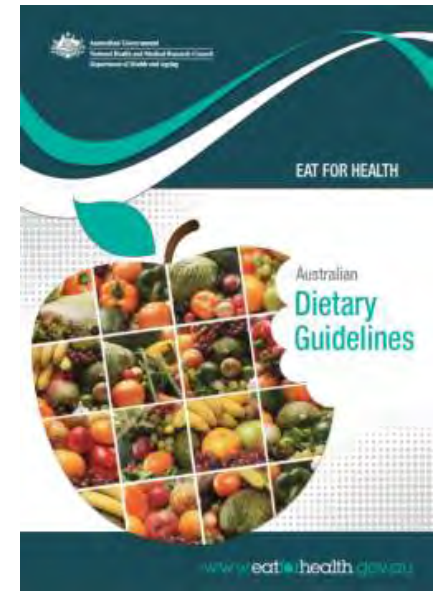
3b) Limit intake of foods and drinks containing added salt.

- 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.

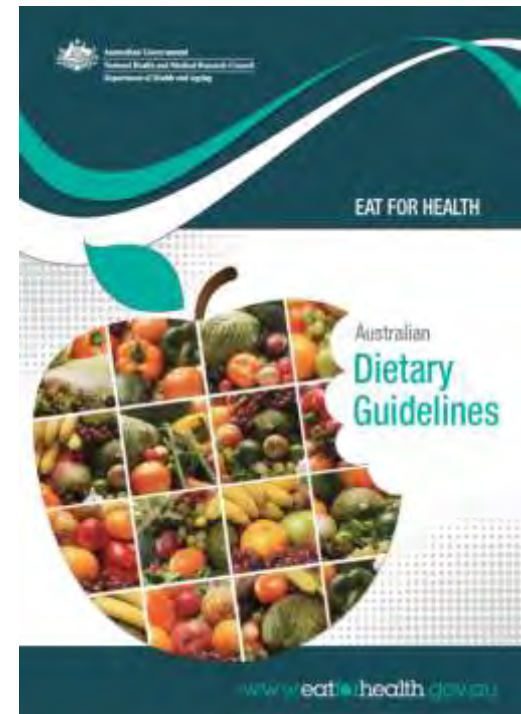
- For women who are pregnant, planning a pregnancy or breastfeeding, not drinking alcohol is the safest option.





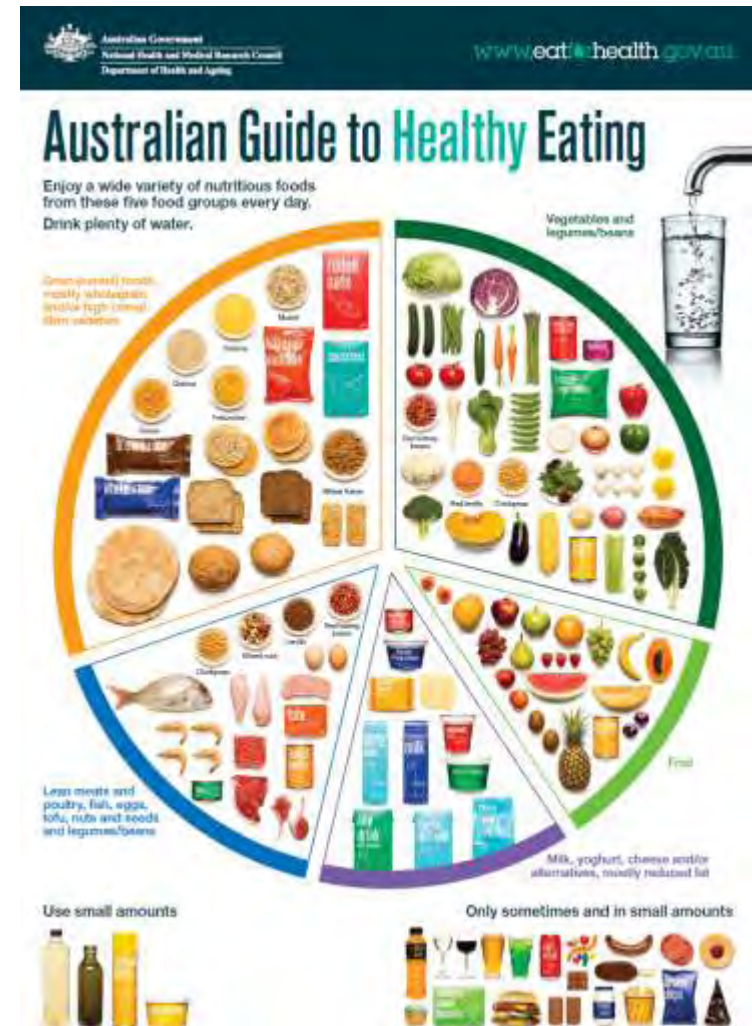
Dietary Guidelines

4. Encourage, support and promote breastfeeding.
5. Care for your food; prepare and store it safely.



Australian Guide to Healthy Eating

- Food selection guide which visually represents the proportion of the five food groups recommended for consumption each day.
- Quick, simple reminder for all Australians to be more mindful of the types of foods they are eating on a daily basis.
- The 'plate' shows that there is minimal room for additional dietary fats and in most instances, little or no room for discretionary (junk) foods in dietary patterns.
- A population level approach to food guidance has been used, considering the food intakes and diet-related health problems of the population as a whole.
- The images featured on the AGTHE reflect the cultural diversity of Australia and our consumption patterns.



Serve Sizes and Recommendations

SERVE SIZES



Vegetables and legumes/beans

Serves per day

| | 19-50 years | 51-70 years | 70+ years |
|-------|-------------|-------------|-----------|
| Men | 6 | 5½ | 5 |
| Women | 5 | 5 | 5 |

A standard serve of vegetables* is about 75g (100-350kJ) or:

- ½ cup cooked green or orange vegetables (for example, broccoli, spinach, carrots or pumpkin)
 - ½ cup cooked dried or canned beans, peas or lentils
 - 1 cup green leafy or raw salad vegetables
 - ½ cup sweet corn
 - ½ medium potato or other starchy vegetables (sweet potato, taro or cassava)
 - 1 medium tomato
- *with canned varieties, choose those with no added salt



Fruit

Serves per day

| | 19-50 years | 51-70 years | 70+ years |
|-------|-------------|-------------|-----------|
| Men | 2 | 2 | 2 |
| Women | 2 | 2 | 2 |

A standard serve of fruit is about 150g (350kJ) or:

- 1 medium apple, banana, orange or pear
 - 2 small apricots, kiwi fruits or plums
 - 1 cup diced or canned fruit (with no added sugar)
- Or only occasionally:
- 125ml (½ cup) fruit juice (with no added sugar)
 - 30g dried fruit (for example, 4 dried apricot halves, 1½ tablespoons of sultanas)



Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties

Serves per day

| | 19-50 years | 51-70 years | 70+ years |
|-------|-------------|-------------|-----------|
| Men | 6 | 6 | 4½ |
| Women | 6 | 4 | 3 |

A standard serve (500kJ) is:

- 1 slice (40g) bread
- ½ medium (40g) roll or flat bread
- ½ cup (75-120g) cooked rice, pasta, noodles, barley, buckwheat, semolina, polenta, bulgur or quinoa
- ½ cup (120g) cooked porridge
- ½ cup (30g) wheat cereal flakes
- ¼ cup (30g) muesli
- 3 (35g) crispbreads
- 1 (60g) crumpet
- 1 small (35g) English muffin or scone



Lean meat and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans

Serves per day

| | 19-50 years | 51-70 years | 70+ years |
|-------|-------------|-------------|-----------|
| Men | 3 | 2½ | 2½ |
| Women | 2½ | 2 | 2 |

A standard serve (500-600kJ) is:

- 85g cooked lean meats such as beef, lamb, veal, pork, goat or kangaroo (about 90-100g raw)*
 - 80g cooked lean poultry such as chicken or turkey (100g raw)
 - 100g cooked fish fillet (about 115g raw weight) or one small can of fish eggs
 - 2 large (120g) eggs
 - 1 cup (150g) cooked or canned legumes/beans such as lentils, chick peas or split peas (no added salt)
 - 170g tofu
 - 30g nuts, seeds, peanut or almond butter or tahini or other nut or seed paste
- *weekly limit of 455g



Milk, yoghurt, cheese and/or alternatives, mostly reduced fat

Serves per day

| | 19-50 years | 51-70 years | 70+ years |
|-------|-------------|-------------|-----------|
| Men | 2½ | 2½ | 3½ |
| Women | 2½ | 4 | 4 |

A standard serve (500-600kJ) is:

- 1 cup (250ml) fresh, UHT long life, reconstituted powdered milk or buttermilk
- ½ cup (120ml) evaporated milk
- 2 slices (40g) or 4 x 3 x 2cm cube (40g) of hard cheese, such as cheddar
- ½ cup (120g) ricotta cheese
- ¾ cup (200g) yoghurt
- 1 cup (250ml) soy, rice or other cereal drink with at least 100mg of added calcium per 100ml

- To meet additional energy needs, extra serves from the Five Food Groups or unsaturated spreads and oils, or discretionary choices may be needed only by those adults who are taller or more active, but not overweight.

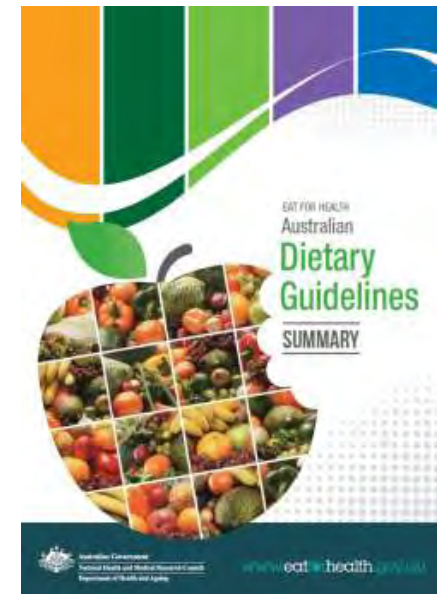
- An allowance for unsaturated spreads and oils for cooking, or nuts and seeds can be included in the following quantities: 28-40g per day for men less than 70 years of age, and 14-20g per day for women and older men.

Implementation and Dissemination

- Adherence to dietary recommendations in Australia is poor
- Children's discretionary food intake = 41% and 35% of total daily energy respectively in 1993 and 2007
- In 1995: adult's discretionary food intake = 35% of total daily energy
- Improved understanding of what Australians are currently eating will assist the implementation - Australian Health Survey
- Although the key messages of the Guidelines may not have changed significantly since 2003, the evidence base supporting them has strengthened considerably
- *“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.”*
- i.e. Need to “cut through”

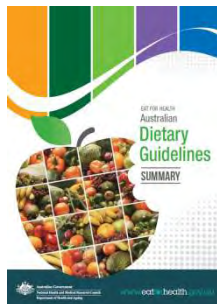
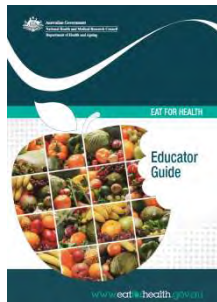
Branding: Eat for Health

- The newly branded 'Eat for Health' Program aims to provide information to help consumers meet their nutritional requirements, maintain a healthy weight and prevent chronic disease.
- The roll out of the Program includes release of resources for health professionals and/or consumers:
 - Australian Dietary Guidelines
 - Infant Feeding Guidelines
 - Australian Guide to Healthy Eating
 - Educator Guide
 - Summary booklets
 - Brochures
 - Fridge magnet
 - Posters
 - Interactive website (www.eatforhealth.gov.au)



Companion Resources

Brochures, Posters, Summary Booklets, Fridge Magnets



Companion Resources

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A standard serve of vegetables* is about 75g (100-350kJ) or:

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Fruit

Serves per day

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A standard serve of fruit is about 150g (350kJ) or:

- 1 medium apple, banana, orange or pear
 - 2 small apricots, low fruits or plums
 - 1 cup diced or canned fruit (with no added sugar)
- Or only occasionally:
- 125ml (½ cup) fruit juice (with no added sugar)
 - 30g dried fruit (for example, 4 dried apricot halves, 1½ tablespoons of sultanas)



Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties

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A standard serve (500kJ) is:

- 1 slice (40g) bread
- ½ medium (40g) roll or flat bread
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- ½ cup (30g) wheat cereal flakes
- ¼ cup (30g) muesli
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Lean meat and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans

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|-------|-------------|-------------|-----------|
| Men | 3 | 2½ | 2½ |
| Women | 2½ | 2 | 2 |

A standard serve (500-600kJ) is:

- 65g cooked lean meats such as beef, lamb, veal, pork, goat or kangaroo (about 90-100g raw)
 - 80g cooked lean poultry such as chicken or turkey (100g raw)
 - 100g cooked fish meat (about 115g raw weight) or one small can of fish
 - 2 large (120g) eggs
 - 1 cup (150g) cooked or canned legumes/beans such as lentils, chick peas or split peas (no added salt)
 - 170g tofu
 - 30g nuts, seeds, peanut or almond butter or tahini or other nut or seed paste
- *weekly limit of 45g



Milk, yoghurt, cheese and/or alternatives, mostly reduced fat

Serves per day

| | 19-50 years | 51-70 years | 70+ years |
|-------|-------------|-------------|-----------|
| Men | 2½ | 2½ | 3½ |
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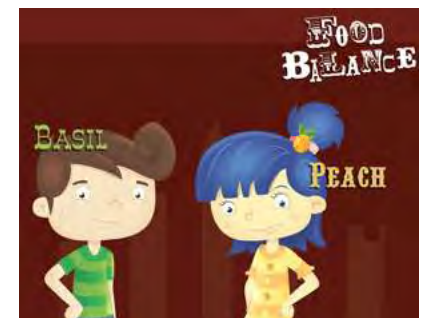
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- ¼ cup (20g) ricotta cheese
- 1 cup (200g) yoghurt
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- An allowance for unsaturated spreads and oils for cooking, or nuts and seeds can be included in the following quantities: 28-40g per day for men less than 70 years of age, and 14-20g per day for women and older men.

Companion Resources

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



More information

For copies of the resources:

<http://www.eatforhealth.gov.au/> (electronic copies)

health.@nationalmailing.com.au (print copies)

Ph 02 6269 1080 (print copies)

For more information:

– [dietaryguidelines @nhmrc.gov.au](mailto:dietaryguidelines@nhmrc.gov.au)

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