

Our new brochure *Your guide to healthy, balanced meals* is designed to make it easy for main meal preparers to make tasty, healthy main meals.

Meat & Livestock Australia (MLA) has developed meal guidelines to support the consumption of healthy, balanced meals consistent with the *Australian Dietary Guidelines*.

To ensure the advice is inspiring and achievable, the guidelines reflect how most Australian main meal preparers think, plan, make and talk about main meals and consequently, terms and food categories found to be most meaningful have been adopted.

This issue of *Vital* explains the evidence underpinning the healthy, balanced main meal guidelines to facilitate their use in nutrition education.

MLA will be evaluating this new approach and your feedback would be extremely helpful as part of this process.

Please send your comments to:
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About the healthy, balanced main meal guidelines

Your guide to healthy, balanced meals provides a meal context for nutrition education, a time when food decisions are made. It is an extension of the *Australian Guide to Healthy Eating* and the *Health Star Rating*.

The meal guidelines focus on the main meal since this is a time when food preparation is most common and where there is interest in receiving meal ideas and cooking tips.

Evidence relating to the behavioural, nutritional and communication aspects of healthy, main meal choice and preparation informed the development of the dietary guidelines.

Consultation with relevant government, non-government organisations, professional associations and nutrition academics contributed valuable insights and input from different perspectives.

The target audience is healthy individuals in typical Australian households. They do not encompass the needs of those on special diets or cultural eating patterns because accommodating every need could compromise the effectiveness of the communication. Developing guidelines based on the choices and behaviours of the target population group is more likely to be meaningful.

The evidence

Three sets of evidence informed the development of the dietary guidelines

1. Behavioural aspects of main meal choice and practices

On-line quantitative surveys commissioned by MLA using a nationally representative sample of main meal preparers in Australia with quotas set by state, gender and age:

- *Last Night's Dinner*¹, 2009 (n=1,421) investigated what was served; who made it; where it was consumed; and attitudes towards cooking.
- *Main Meal Repertoires*², 2010 (n=928) explored popular meals, including planning and purchasing practices and differences by life stage.
- *What's Cooking*³, 2011 (n=1,023) focused on gaining a better understanding of common cooking practices.
- *Eating Out survey*⁴, 2014 (n=2,595) examined meal choices when eating out, including type of meal, venue and demand for nutrition information. Differences between meals eaten out and prepared at home were explored in a 7 day diary (n=546)

2. Nutritional requirements

NHMRC (2011) *A Modelling system to inform the revision of the Australian Guide to Healthy Eating*. Canberra: National Health and Medical Research Council

3. Communicational needs

Three day moderated online discussion board (n=28 main meal preparers: 13 with young children and 15 with older children)

Typical main meal choices and behaviours – a good place to start

Habits are hard to break and when it comes to main meal choices and practices, habits seem well entrenched in the typical Australian household.

According to Mark Twain, “Habit is habit, and not to be flung out of the window by any man, but coaxed downstairs a step at a time”.

Considering the habitual and formulaic approach to main meal preparation in the average Australian household where few use recipes and most prepare the meal from memory, building on current main meal choices and preparation practices was a good starting point for developing the healthy, balanced main meal guidelines.

Behaviours informing the four steps to a healthy balanced meal include:

Step 1: Three core ingredients

In the *Last Night's Dinner* survey¹, the most commonly used ingredients included:

- Meat, poultry or fish (90%)
- Vegetables, excluding potatoes (92%)
- Potatoes (mainly boiled) bread, rice, pasta or noodles (82%)

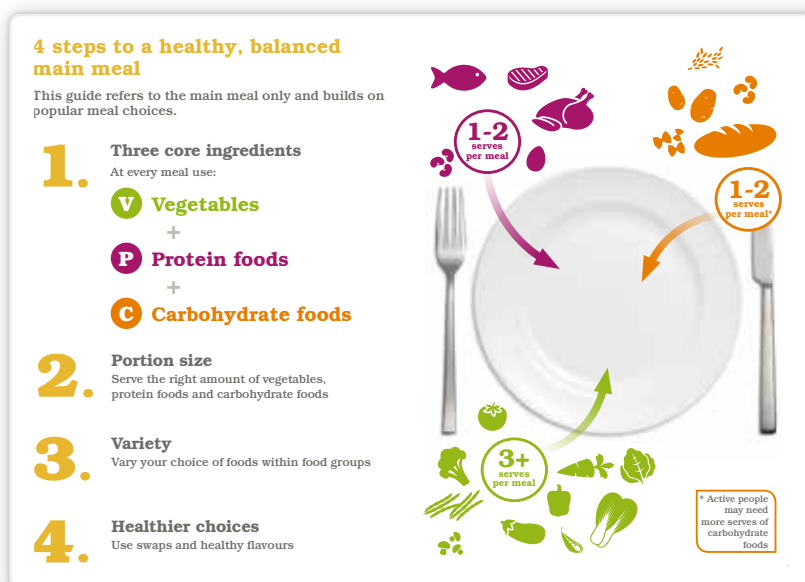
Dairy foods, mainly cheese was added to less than half of the meals and only 9% used legumes, with very few using nuts and seeds. Eggs were included in 13% of meals, mainly as fried or scrambled eggs.

The three core ingredients recommended in step one of our guidelines therefore reflect this eating pattern and have been labelled as:

- ‘Protein foods’, including meat, poultry, fish, eggs, legumes and tofu
- Vegetables
- ‘Carbohydrate foods’, including potatoes, rice, pasta, bread, grains and legumes

These terms were most meaningful to our panel of main meal preparers who tended to associate a food group with a key nutrient. Many appreciated guidance on ‘carbohydrates foods’, in particular, recognition that they should be included as part of a healthy, balanced meal.

Only 27% served dessert which was mainly ice cream or fruit and water was the most popular beverage. Consequently, the



healthy, balanced main meal guidelines focus on the main meal only.

Step 2: Portion sizes

Our main meal research suggests main meals typically contain at least three different serves of vegetables, making this an achievable target¹.

For protein foods, main meals typically contained between one to two serves, depending on the meal style. For instance, steaks are typically around 200g (raw weight), whereas around 100g is typically used to make spaghetti bolognese.

Feedback from the online discussion board suggested a flexible approach regarding number of serves of carbohydrate foods was required to accommodate differences in physical activity within the household, such as men in labouring occupations and sporty teenagers.

Step 3: Variety

‘Variety’ is a popular concept amongst main meal preparers because they are always seeking new and enticing meal ideas to maintain the household’s interest in healthy meals.

Whilst they appreciated some guidance on frequency, main meal preparers found a structured menu format too

restrictive. Hence, guidance was only provided for those foods indicated in the dietary guidelines modelling as necessary for meeting ‘limiting’ nutrients in the Australian diet e.g. folate, iron, omega-3 and dietary fibre.

A shopping list format was suggested during the online discussion board for main meal preparers as a more effective way in which to inspire main meal preparers to use different ingredients within their main meal repertoire.

Variety is also about balance and main meal preparers appreciated guidance on how to achieve a balance between healthy foods and less healthy choices. This flexible approach is also reflected in the dietary guidelines modelling which included a third refined to two thirds wholegrain choices.

Step 4: Healthier choices

During the three day bulletin board discussion, main meal preparers reacted strongly against advice such as ‘reduce salt’, ‘try’ and ‘aim’, terms which they found de-motivating.

Positive, constructive advice such as ‘swaps’ and reference to useful tools such as the *Health Star Rating* which provide clear guidance was appreciated.

Matching nutrition with main meal choices and behaviours

The guide to healthy, balanced meals is a practical tool for promoting recommended foods in ways and amounts that reflects the attitudes, behaviour and language of main meal preparers.

While the way in which foods are described and grouped differs to that of the *Australian Guide to Healthy Eating*, there is consistency in the amounts and types of foods recommended.

Hence, *Your guide to healthy, balanced meals* complements the *Australian Guide to Healthy Eating* and the *Health Star Rating* providing a meal context for applying daily recommendations and choosing healthier choices, respectively.

Legumes as protein and carbohydrate foods

Consumption of legumes was rare in our research on main meal choices with only 9%¹ and a third reporting that they rarely based their main meal around legumes².

Yet, legumes are a good, natural source of prebiotics and two serves a week (75g or ½ cup) was included in the dietary guidelines modelling (as a vegetable choice). It is therefore important to find a way in which to motivate main meal preparers to include legumes in their main meal repertoire, ideally in addition to the typical three serves of vegetables.

There is some evidence main meal preparers use legumes as ‘carbohydrate foods’. Nutritionally, legumes resemble ‘carbohydrate foods’ in relation to their dietary fibre, iron, zinc, protein and energy content. Furthermore, there is evidence that a combination of dietary fibre food sources is optimal luminal for gut health⁴.

Hence, promoting intake of a variety of ‘carbohydrate foods’ for dietary fibre (which includes legumes and other wholegrain dietary fibre food sources), may provide a meaningful way in which to increase legume intake at the main meal in a way that main meal preparers can easily achieve.

In addition, a flexible approach allows main meal preparers to choose a larger or smaller serve size, depending on whether

they wish to use legumes as a ‘protein food’ or as a ‘carbohydrate food’.

Nuts and seeds

The nutritional profile of nuts and seeds differs from that of other foods within the ‘protein food’ group and were modelled separately in the dietary guidelines modelling. For this reason and considering they are not a common ingredient in the current Australian main meal repertoire, they were not included in the ‘protein food’ group. However, they are suggested as an additional ingredient along with dairy foods and fruit.

Three to four red meat meals a week

The 455g/week cooked red meat recommended in the *Australian Dietary Guidelines* was derived from the 65g/day indicated in the dietary guidelines modelling to meet iron and zinc requirements.

Since iron and zinc are limiting nutrients for certain population groups, 455g/week represents the minimum requirement. Due to epidemiological evidence associating intakes of 100 to 120g/day of red meat with increased risk of colorectal cancer, the recommended intake of red meat was limited to 455g/week (equivalent to 650g/week, raw weight, based on 30% moisture loss). Hence, 455g/week represents the ideal amount of red meat required for good health.

Australians typically have about two serves of beef, 1 serve each of lamb and pork a week. This pattern is consistent with the flexible approach adopted in the *Australian Guide to Healthy Eating* which recommends 65g/day or 130g every second day. This is equivalent to three to four serves a week.

Standard serves for meat, fish and poultry

Main meal preparers prefer simple, clear instructions and tend to want reject over-complicated, text heavy information.

Portion sizes of meat available for purchase as single serves (i.e. steaks) vary from 100 to 200g. This is consistent with reported portion sizes in our main meal research³. A secondary analysis of the *National Nutrition and Physical Activity Survey (2011-12)* suggests a wide variation in meat, poultry and fish consumption on the day of the survey ranging from less than 100g to around 200g raw weight – most likely reflecting the different ways in which meat is consumed. Portion sizes were mostly similar between meat, fish and poultry.

When trimmed of all visible fat, the energy content of beef, chicken, lamb, pork and eggs are similar at around 500kJ/100g (see Table 1).

Table 1: Energy content of ‘protein foods’

	kJ
100g beef rump medallion, fully trimmed	450
100g chicken, breast, skinless	438
100g lamb leg steak, fully trimmed	582
100g pork, loin chop, fully trimmed	461
Eggs, 2 eggs (med)	453
Tofu (170g)	456 - 901
Legumes, 1 cup	485 - 674

Vegetable shapes as serve size

In practice, a cup is not a practical measurement for a vegetable serve. Not many vegetables ‘fit’ inside a cup and when chopped, weights differ depending on the type of vegetable. Furthermore, depending on volume, three cups of vegetables does not always make an acceptable meal.

Using the natural shape of vegetables to describe serve sizes provides an easier, more practical way in which to increase vegetable consumption.



The main meal: a good opportunity to promote healthy eating

The healthy, balanced main meal guidelines meets demand for healthy meal ideas which can be adapted to suit personal tastes, cooking habits and budget.

The main meal is a time when most Australians eat a meal that is usually cooked from scratch and eaten in the home.

Typically eaten between 6 and 8pm⁴, nine out of ten meals are eaten at home with 75% of meals cooked from scratch, mostly from fresh ingredients recommended in the dietary guidelines¹.

Interestingly, there are no apparent socio-economic differences in the way in which meals are cooked⁶.

Interest in cooking

Providing advice on how to prepare a healthy, balanced meal provides a good opportunity to promote healthy eating since our main meal research indicates that 71% of main meal preparers want to learn about cooking. Only 18% didn't like cooking. In particular, they want to learn how to make their meals healthier but also tastier and with little effort and cost. They are particularly keen to receive practical tips about improving the ingredients and cooking methods in their main meal repertoire e.g. different cuts of meat and how to make the perfect steak/curry/stir-fry etc. There was less interest in learning new skills e.g. poaching or steaming meat.

Although main meal preparers say they want information about the fat, sugar and energy content of the meal, they don't tend to use this information when making meal choices⁴. They seem most interested in knowing whether the meal contains fresh, wholesome ingredients.

Responding to their interest in main meal ideas, cooking tips and fresh ingredients provides a compelling way in which to engage the general public in a conversation about healthy eating.

Meals invite vegetables

A meals-based approach may also help to increase vegetable consumption.



Our main meal research suggests the number of serves of vegetables included in a meal is dependent on meal style. Some meals are habitually made with three or more different vegetables, whereas others are typically made with two or less. Reinforcing popular, vegetable-friendly meal choices is more likely to be effective than recommending unfamiliar choices and practices.

Our meal ideas are therefore based around popular meals shown to contain at least three different vegetables.

Adapt, not change

A flexible approach is necessary so main meal preparers can adapt meal ideas as required. Main meal preparers in our online discussion board found recipes which 'serve 4' difficult to adapt to larger or smaller households and responded well to variations. So instead of providing recipes, each meal idea simply lists the number of serves of core ingredients per person and suggests variations and tips for achieving the recommended serve sizes per person. This allows the main meal preparer to adapt quantities and choice of ingredients according to the number of people in the

household, availability of ingredients, budget and taste preferences.

Although our focus is on promoting preparation of healthy, balanced main meals as part of the recommended three to four red meat meals a week, we found that main meal preparers were able to apply the healthy, balanced main meal guidelines to other protein foods i.e. swapping chicken for beef or lamb since this was what they had available.

This suggests that the brochure can serve as a useful resource for motivating main meal preparers to serve a variety of healthy, balanced main meals using a wide variety of core ingredients.

References:

1. MLA (2009) *Last Night's Dinner*. Sydney: Meat and Livestock Australia. ISBN 9781741913583
2. MLA (2011) *Main Meal Repertoires*. Sydney: Meat and Livestock Australia. ISBN 9781741915679
3. MLA (2013) *What's Cooking*. Sydney: Meat and Livestock Australia. ISBN 9781925045093
4. MLA (2014) *Eating Out*. Unpublished.
5. Muir JG et al. *Am J Clin Nutr* 2004;79(6): 1020-28
6. Worsley A et al. *Br Food Journal* 2015; 117(2): 664-676.

Reports on main meal research^{1, 2, 3}; the brochure, *Your guide to healthy, balanced meals*; and recipes featured in the brochure are available at www.mlahealthymeals.com.au



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