

Red Meat – Becoming portion savvy

Sorting fact from fiction



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Whilst we are in the ‘information age’ there remains confusion about what we should, or should not be eating, what the latest superfood is and what the right portion size is. This article sets out to discuss these issues in the context of red meat. It takes a look at current red meat intake guidelines, how much we are eating and provides recommendations about how we can monitor portion sizes to make sure we are eating the right amount.

Introduction

Red meat has had a central role in human evolution and is an important part of a healthy and balanced diet, providing high biological protein, bioavailable iron, vitamin B12 and other B-complex vitamins, zinc, selenium and phosphorus.¹ Unfortunately, these aspects have recently been overshadowed by the International Agency for Research on Cancer (IARC), the specialised cancer agency of the World Health Organisation, which classified red meat as ‘probably carcinogenic’ and processed meat ‘carcinogenic’ for colorectal cancer (CRC), despite having unclear insights about underpinning mechanisms.^{2,3}

Whilst the IARC evidence³ included more than 800 observational studies relating to CRC, it should be considered that this form of ‘observational’ evidence has a tendency to be flawed with spurious (false) significant associations often being hampered by effects of confounding.^{4,5} Nevertheless, findings from evidence of this kind still goes on to be translated into heavily opinionated, disputed recommendations.⁴

Guidelines

In 2010, the Scientific Advisory Committee on Nutrition (SACN) published a report⁵ on Iron and Health. It was recognised that red and processed meat are a source of iron in the UK diet and that ‘it was not possible to quantify the amount of red and processed meat that may be associated with increased colorectal cancer risk because of limitations and inconsistencies in the data’.

Subsequently, based on evidence available at the time, it was advised that adults with relatively high intakes of red and processed meat (over 90 g/day) should consider reducing their intakes to 70 g/day. These recommendations were based on theoretical modelling showing that a reduction in the red and processed meat intakes from 90 to 70 g/day (cooked weights) would have little impact on the proportion of the adult

population with iron intakes below the lower reference nutrient intake (LRNI). These figures now form the basis of the Department of Health guidelines about meat intakes, who advise that people who eat a lot of red meat (more than 90 g/day cooked weight) should cut down to 70 g/day.⁶ These benchmarks are also referred to as ‘maximum intakes’ in the latest National Diet and Nutrition Survey (NDNS; years 5 and 6).⁷

The latest IARC report compiled some ‘risk estimates’ for red and processed meat. For red meat, using data from 10 studies, the report suggests that a 100 g portion of cooked red meat eaten daily could increase the risk of CRC by around the about 17%. Using data from the same 10 studies for processed meat it was estimated that every 50 g portion of processed meat eaten daily could increase the risk of CRC by around 18%. Nevertheless, whilst these risk estimations were made by IARC, formal conclusions about ‘how much’ red and processed meat could be eaten were not drawn due to the fact that ‘data available for evaluation did not permit a conclusion about whether a safe level exists’.⁸

The World Cancer Research Fund (WCRF) separates its advice for red and processed meat.⁹ It advises that people who eat red meat should consume less than 500 g (18 oz) of cooked red meat a week (about 700 to 750 g as raw weight) and to eat very little, if any, processed red meat. The WCRF defines red meat as: ‘beef, pork, lamb and goat – foods like hamburgers, minced beef, pork chops and roast lamb’.¹⁰ Processed meat is defined as: ‘meat which has been preserved by smoking, curing or salting, or by the addition of preservatives’. Examples include ham, bacon, pastrami and salami, as well as hot dogs and some sausages.¹⁰ The WCRF has also established a ‘public health goal’, advising that the population average consumption of red meat should be no more than 300 g (11 oz) a week with very little, if any, being processed.⁹

So, how much are we eating?

Figure 1 shows mean intakes of red and processed meat using UK NDNS data (years 5 and 6).⁷ In the NDNS data, red and processed meat is pooled under one category and includes beef, lamb, pork, sausages, burgers and kebabs, offal, processed red meat and other red meat.

Findings showed that women had the lowest mean daily intakes of red and processed meat (Figure 1). Women aged 19 to 65 years had mean intakes of 47 g/d and those aged 65 years and over ate 57 g/d, indicating that intakes were well within Department of Health recommendations⁶ to eat no more than 70 g per day. As a result, if anything these population groups are eating well below the recommendations, placing them at risk of falling short of vital nutrients found in red meat. Furthermore, intakes of red and processed meat for women aged 19 to 64 years were significantly lower in years five and six (combined) (47 g) than in years one and two (combined) (58 g), indicating a decline in this population group. For men, mean intakes of red and processed meat were higher. Men aged 19 to 65 years had mean intakes of 84 g/d while those aged 65 years and over ate 81 g/d, indicating that intakes exceeded Department of Health red meat advice.

In terms of blood biomarkers there was ongoing evidence of anaemia (as reflected by low haemoglobin levels), along with low iron stores needed for haemoglobin which has the major role of transporting oxygen around our bodies (as reflected by low plasma ferritin); particularly amongst females aged 11 to 18 years and women aged 19 to 64 years. Equally, there was evidence of low serum vitamin B12 status amongst girls aged 11 to 18 years and in adults aged 19 years and over. Whilst the contribution of red meat intakes to nutrient intakes has not been studied using data from the UK NDNS, in the U.S. analysis of the National Health and Nutrition Examination Survey (NHANES) has shown that amongst adults

aged 19 to 50 years lean beef was a valuable source of nutrients, contributing to just 3.9% of total energy, 4.5% to total fat and 3.8% saturated fatty acids, yet 15% to protein, 25% to vitamin B12, 23% to zinc and 8% to iron.¹¹

Does one size fit all?

Looking at the current guidelines along with evidence from the UK NDNS,⁷ we can see how these relate to the Eatwell Guide. Unfortunately, the recently revised Eatwell Guide infographic communicates a blanket message to 'eat less red and processed meat'.¹² It is only within the supplementary booklet that it specifies 'if you eat more than 90 g of red or processed meat per day, try to cut down to no more than 70 g per day'.¹³ This 'one size fits all' approach is confusing for the lay public who will typically use the infographic rather than the booklet as their prime source of information.

As seen in the UK NDNS (years 5 and 6), women aged 19 to 64 years consumed just 47 g/day of red and processed meat. Furthermore, just under one-third (27%) of women in the same age bracket had iron intakes below the LRNI.¹⁴ There was also continued evidence of anaemia and low iron status in this population group. So, the misbelief that everyone needs to eat less red meat could impact adversely on women's iron intakes and status. Likewise, restrictive recommendations should not be applied to those ≥70 years, as the consumption of protein from meat is important for them, especially as it also provides vitamins A B1, B12, niacin, iron and zinc.¹⁵

Being portion proficient

Gauging 'how much' red meat we can eat, in order to fall in line with latest advice is not always easy. The different weight of cooked and raw meats, uncertainties about quantities of meat in composite dishes, whether to exclude bones in the weights (e.g. pork and lamb chops), the thickness of cut and ways meats are packaged are some examples of factors affecting judgements about portion size. Figure 2

shows how much meat provides 70 g. Choosing lean cuts of meat, i.e. back bacon rather than streaky bacon, those with the lowest fat i.e. lean mince, trimming off any excess fat and grilling meat rather than frying, all help to reduce its fat content.⁶

In terms of trends, survey data shows that average portion sizes of roast meats and steaks have not increased over time, whilst burgers and sausages are sold at a standard weight. For sausages there are some weight variations with a thin sausage is likely to weigh about 25 g to 28 g, a thick sausage about 50 g to 57 g and a premium sausage about 67 g or 76 g. Weights of wafer thin (e.g. 8 g/slice) and standard slices (e.g. 23 g) have remained broadly similar. However, slice weights of premium products tend to be higher, at up to 45 g per slice.¹⁶ This data indicates that we may need to eat smaller portions of premium products that tend to be sold at a higher weight.

Table One summarises typical portion sizes of red meat, using Food Standards Agency benchmarks.¹⁷ It can be seen that simple changes, like swapping middle for back bacon, opting for thinner sausages and slices of ham, could help to reduce portion sizes. Over the course of a week, red meat can be included easily within about five main meals without exceeding World Cancer Research Fund advice to eat no more than 500 g per week (Table Two).

Figure 1: Red and Processed Meat Intakes (g/day)

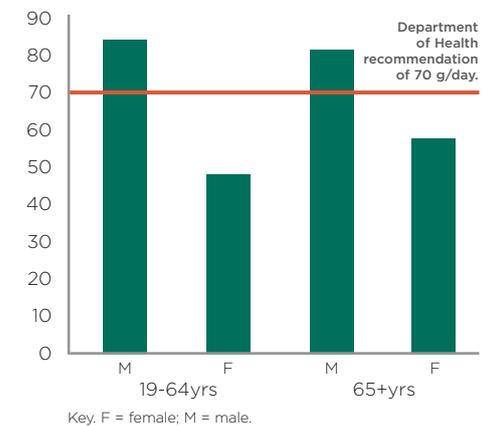
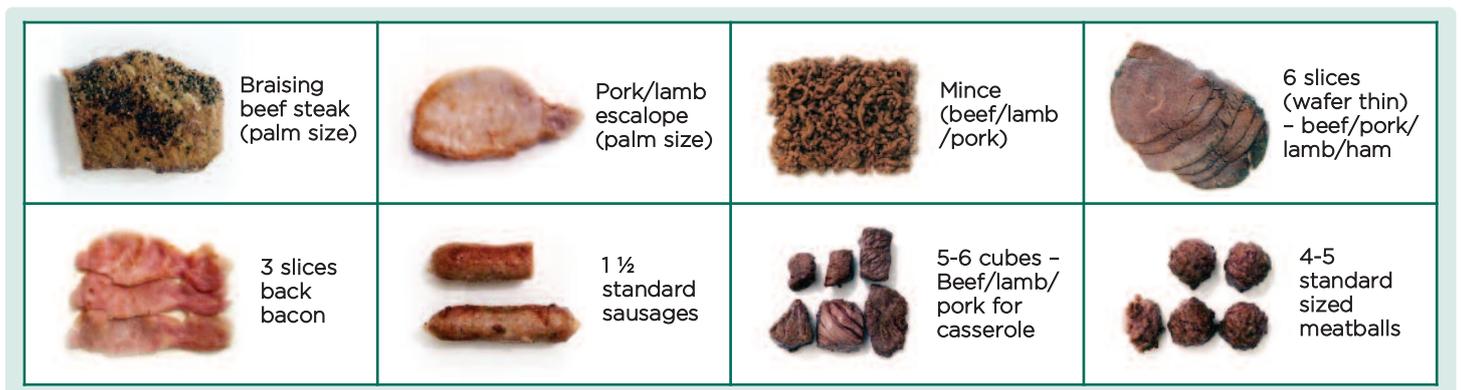


Figure 2: What 70 g Looks Like (cooked red meat)



Discussion

There are a host of different diets on trend at the moment – from clean eating, to paleo and plant-based diets. Within these, it is important to communicate messages about red meat within context. For example, the concept of clean living (eating unrefined foods) is the latest trend but in reality, the evidence-base is very much lacking.¹⁸ Red meat is an important source of certain micronutrients including iron, selenium, vitamins A, B12 and folic acid. These micronutrients are either not present in plant-derived food or have very poor bioavailability.¹⁹

As we have seen in this article, females in the UK have red meat intakes well below recommended guidelines. However, encouraging all population groups to: *'Eat less red and processed meat'*,¹² as the current Eatwell Guide does, is not helpful. In fact, this one-size-fits-all advice places UK women at further risk of iron deficiency and iron deficiency anaemia. This is particularly concerning given that latest NDNS findings highlighted that 27% of women aged 19 to 64 years had iron intakes below the LRNI, along with suboptimal markers of iron status.

It does appear, however, that some men are the drivers behind higher red meat intakes and it is those who need to be most portion savvy. Being familiar with what 70 g 'looks like' and how this compares to everyday objects may help. Equally, opting for thinner slices and cuts of meat means that meat can still be enjoyed but in lower quantities. Only eating meat with main meals and in smaller amounts (roughly the size of the palm of your hand, a deck of cards or standard mobile) also helps to keep intakes aligned with advised intakes.

With regard to red meat intake guidelines, the most sensible advice and guidance stems from the Iron and Health report and any ad hoc advice formed from reports such as the IARC report, should not be followed. IARC was not about changing or driving recommendations.

Conclusion

In conclusion, as well as being familiar with red meat guidelines, information about being portion savvy also needs to be communicated – especially to UK males. The recommendation to eat no more than 500 g cooked red meat weekly equates to this being eaten over about five main meals. Advice to eat no more than 70 g red/processed meat per day recommendation in visual terms corresponds to a portion of red meat about the size of the palm of your hand or a standard mobile.

Table One: Sizing up the Average Portion of Various Red Meats

Meat	Cooked weight (g)
Very thinly sliced ham or beef	11
Thin pork/beef sausage	20
A slice of ham (average)	23
One rasher back bacon, grilled	25
Slice of black pudding	30
Beef burger, 100% beef, grilled	34
Corned beef, 1 thin slice	38
One rasher middle bacon, grilled	40
Standard sausage, grilled	40
Spare ribs, edible portion	60
Roast beef, pork or lamb, small portion	50
Lamb chop (edible portion), grilled	70
Lean pork escalope, grilled	75
Beef stewed	90
Kebab meat, average	90
Roast beef, pork or lamb, medium portion	90
Beef minced, stewed	100
Beef steak, grilled	110
A grilled 8 oz beef steak	168
A gammon steak, average	170

A 70 g portion typically fits in the palm of your hand, or is the size of a deck of cards/standard mobile.

Source: FSA (2014)⁷

Table Two: Weekly Red Meat Intake Below 500 g

Below WCRF standard recommendation of 500 g/week	
Saturday	Cooked breakfast with two rashers of grilled, middle bacon (80 g) or two pork/beef standard sausages (80 g)
Sunday	Roast beef, pork or lamb, medium portion (90 g)
Monday	Pork or beef sandwich or baguette using leftovers from Sunday (90 g)
Tuesday	Alternative
Wednesday	Lamb chop, edible portion (70 g)
Thursday	Alternative
Friday	Spaghetti Bolognese or Chilli Con Carne using minced beef (100 g).
Weekly total	430 g

Declaration: Emma Derbyshire is a member of the Meat Advisory Panel (MAP) which provided funding to write this article. MAP is supported by a non-restricted educational grant from the Agriculture and Horticulture Development Board (AHDB); www.meatandhealth.com

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