The positive benefits of meat

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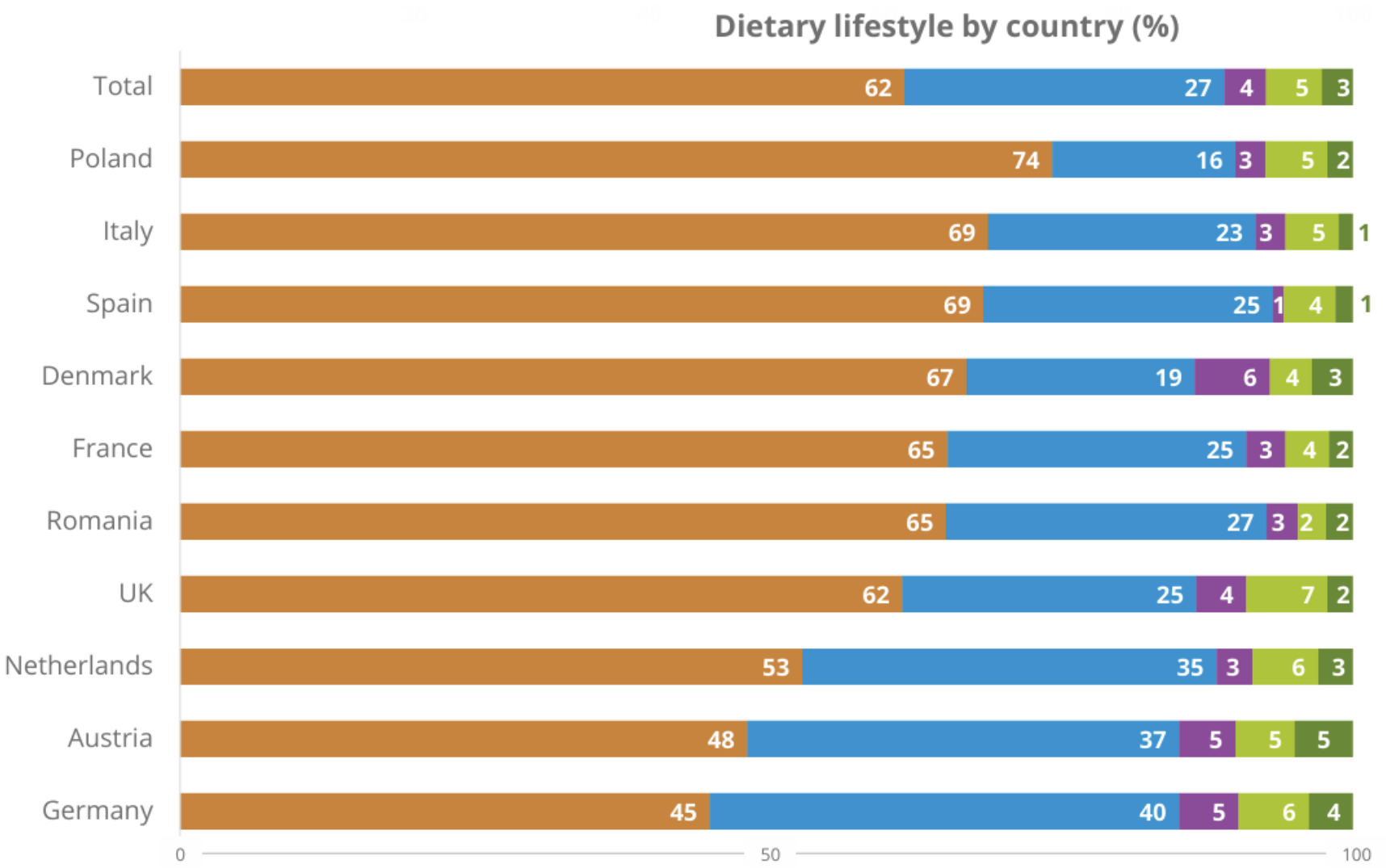
Board member of Quality Meat Scotland

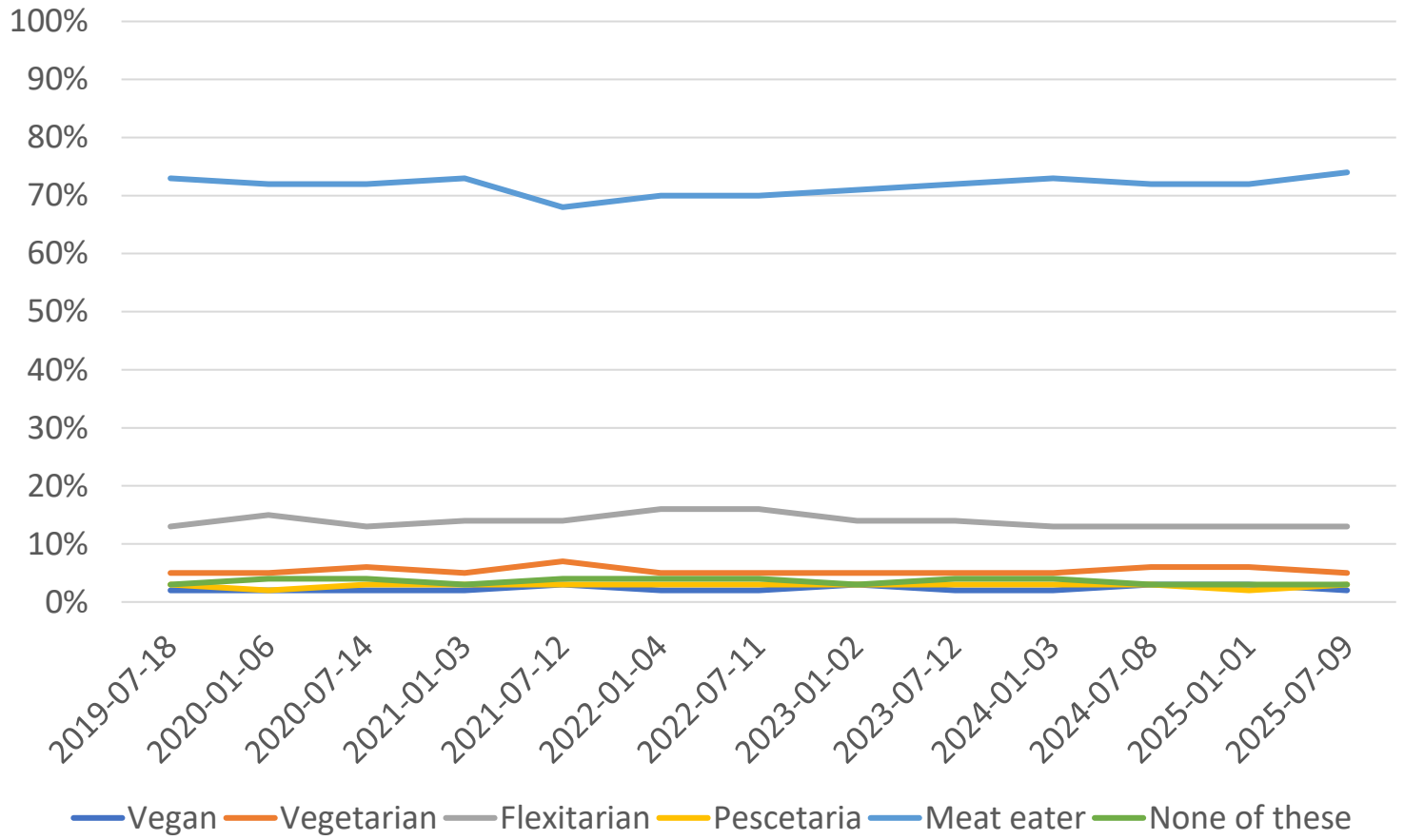
Most people in Europe eat meat



- Omnivore – I frequently eat meat (such as beef, pork, chicken, turkey, fish and/or shellfish)
- Flexitarian – I sometimes eat meat, but I am trying to reduce my meat consumption and often choose plant-based foods instead
- Pescatarian – I eat fish and/or shellfish, but no other types of meat
- Vegetarian – I don't eat meat and fish of any kind, but I do eat eggs and/or dairy products2
- Vegan – I don't eat meat, fish, eggs, dairy products, or any other animal-based ingredients

Survey of 7500 consumers; Smart Protein project 2023 https://smartproteinproject.eu/european-attitudes-towards-plant-based-eating/

No uplift in veganism in UK despite media chatter



5% vegetarians
2% vegans

Did the Eat Lancet report have an impact on meat eating in the UK?

Survey of 2000 UK consumers per year; YouGov

So, I asked ChatGPT

did publication of the Eat Lancet report in January 2019 change the percentage of Europeans who eat meat

- The **EAT-Lancet report** influenced global dietary discourse, but it **did not directly cause a documented change** in the percentage of Europeans who eat meat.
- Some countries, like Germany, show **declining meat-eating habits over time**, but these changes appear independent of the report's publication.
- Overall, meat consumption has been gradually decreasing in Europe, but **no sudden or report-driven shift** has been identified.

Meat nutrition

Average nutrition per 100g: nutrients of significance

	Beef	Pork	Lamb	Daily recommendation
Potassium mg	350	380	330	2000
Phosphorus mg	200	190	190	700
Iron mg	2.7	-	-	14
Zinc mg	4.1	2.1	3.3	10
Selenium mcg	-	13	-	55
Riboflavin mg	0.21	0.24	-	1.4
Niacin mg	5	6.9	5.4	16
Vitamin B6 mg	0.53	0.54	0.3	1.4
Vitamin B12 mcg	2.0	1.0	2.0	2.5
Pantothenic acid mg	-	-	0.92	6

High protein
>20% energy

Low sodium
<0.3mg/100g

Iron bioavailability higher from red meat compared with plants

British Journal of Nutrition (2005), **94**, 78–83
DOI: 10.1079/BJN20051417

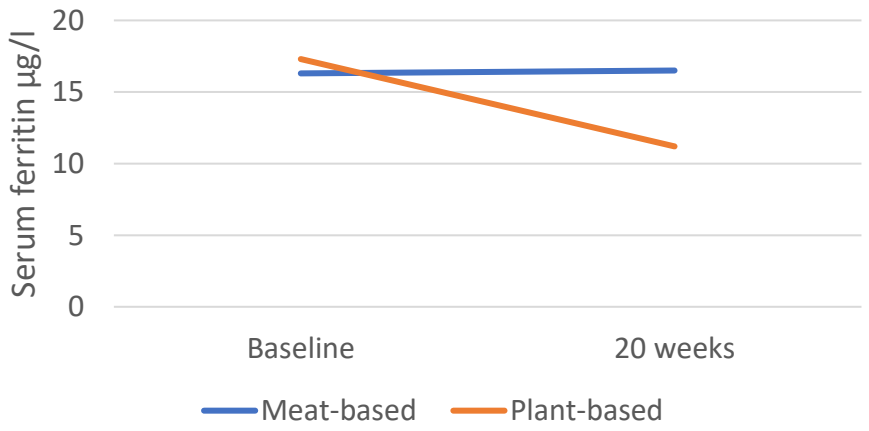
Pork meat increases iron absorption from a 5-day fully controlled diet when compared to a vegetarian diet with similar vitamin C and phytic acid content

Mette Bach Kristensen[1]*, Ole Hels[1], Catrine Morberg[1], Jens Marving[2], Susanne Bügel[1] and Inge Tetens[1]

Randomized Controlled Trial > Eur J Nutr. 2007 Dec;46(8):439-45.
doi: 10.1007/s00394-007-0683-6. Epub 2007 Nov 2.

The impact of a meat- versus a vegetable-based diet on iron status in women of childbearing age with small iron stores

Inge Tetens [1], Karen M Bendtsen, Marianne Henriksen, Annette K Ersbøll, Nils Milman



> Am J Clin Nutr. 2010 May;91(5):1461S-1467S. doi: 10.3945/ajcn.2010.28674F. Epub 2010 Mar 3

Iron bioavailability and dietary reference values

Richard Hurrell [1], Ines Egli

"Heme iron is estimated to contribute 10–15% of total iron intake in meat-eating populations, but, because of its higher and more uniform absorption (estimated at 15–35%), it could contribute 40% of total absorbed iron".

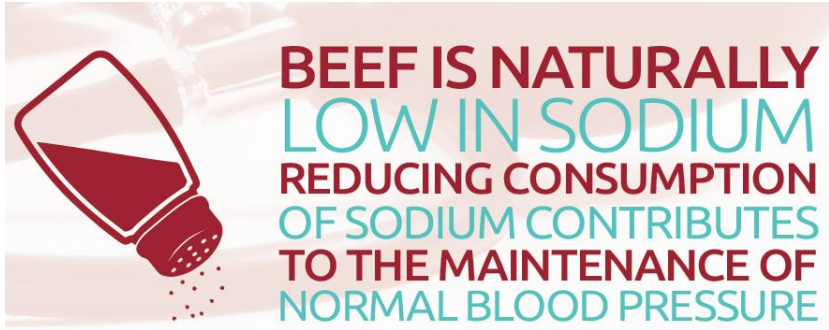
Authorised micronutrient claims for red meat

	Source of (≥ 15% NRV)	Rich in (≥ 30% NRV)
Beef	Iron, potassium, phosphorus, riboflavin	Niacin, vitamins B6 & B12, zinc
Pork	Riboflavin, zinc, potassium, phosphorus, selenium, pantothenic acid	Thiamin, niacin, vitamin B6, vitamin B12
Lamb	Vitamin B6, potassium, phosphorus, pantothenic acid	Niacin, vitamin B12, zinc
Veal	Vitamin D, zinc, potassium	Niacin, vitamin B12
Calf liver	Vitamin C, potassium	Vitamin A, all B vitamins, zinc, selenium, phosphorus

As per EU & GB Nutrition and Health Claim regulations

These provide a gateway to authorised health claims

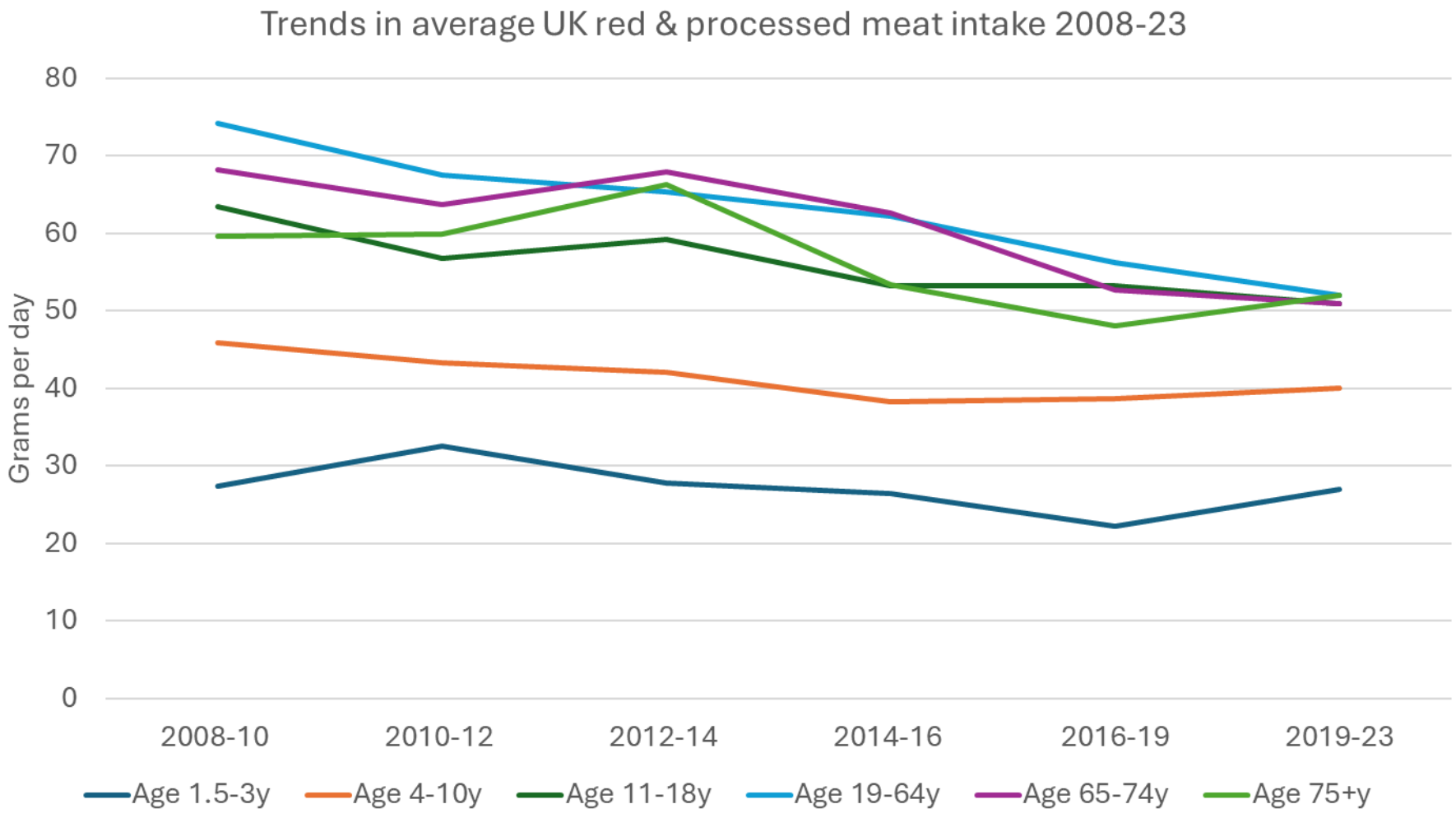
1. Normal heart health and blood pressure
2. Normal vision
3. Growth & maintenance of muscle
4. Mental function, anti-fatigue
5. Immune function
6. Normal bones and teeth
7. Normal skin, hair, nails



Based on list of Authorised EU Nutrition & Health Claims

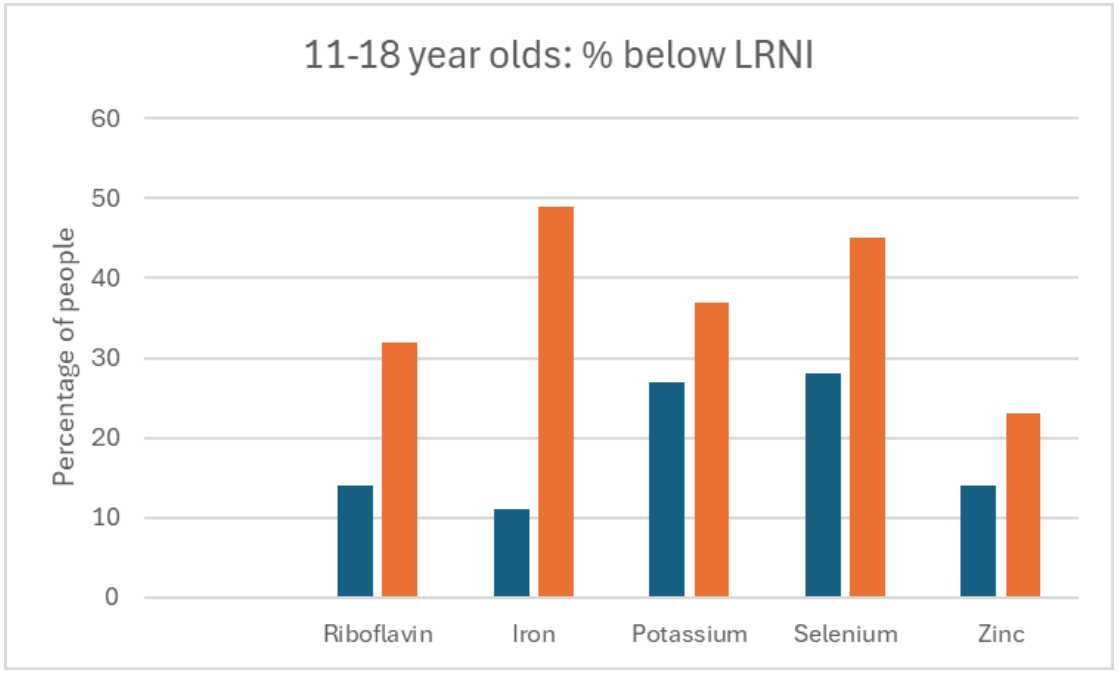
Role of meat in the diet – using UK as an example

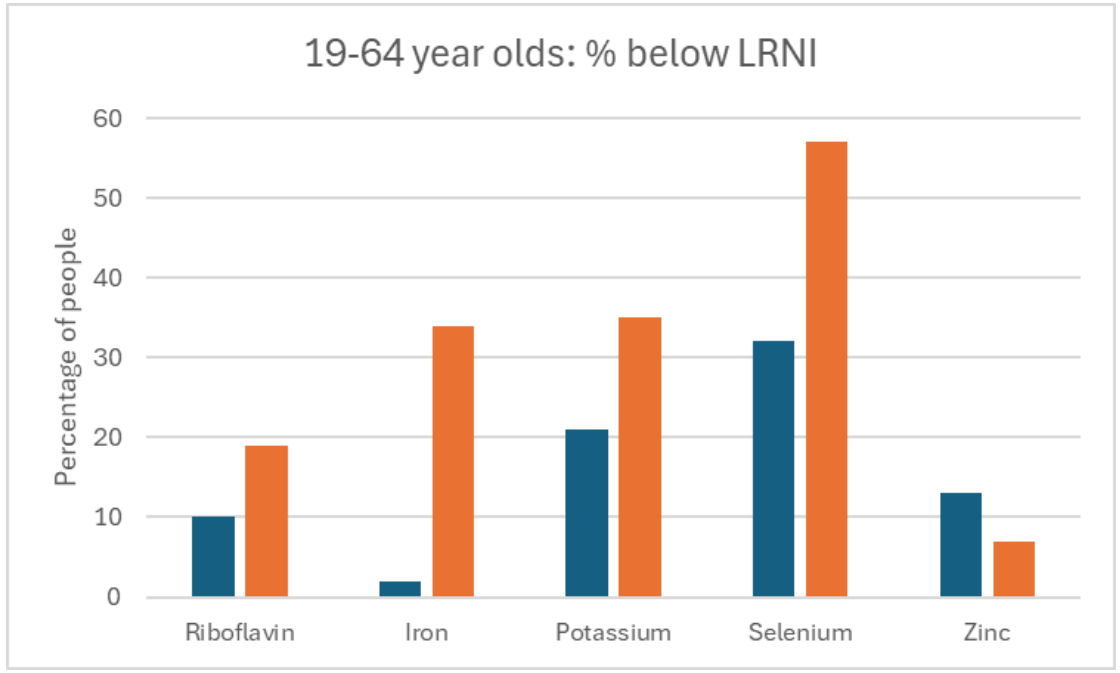
Decline seems to be flattening



National Diet & Nutrition Survey 2025

Intakes of some nutrients found in meat are too low



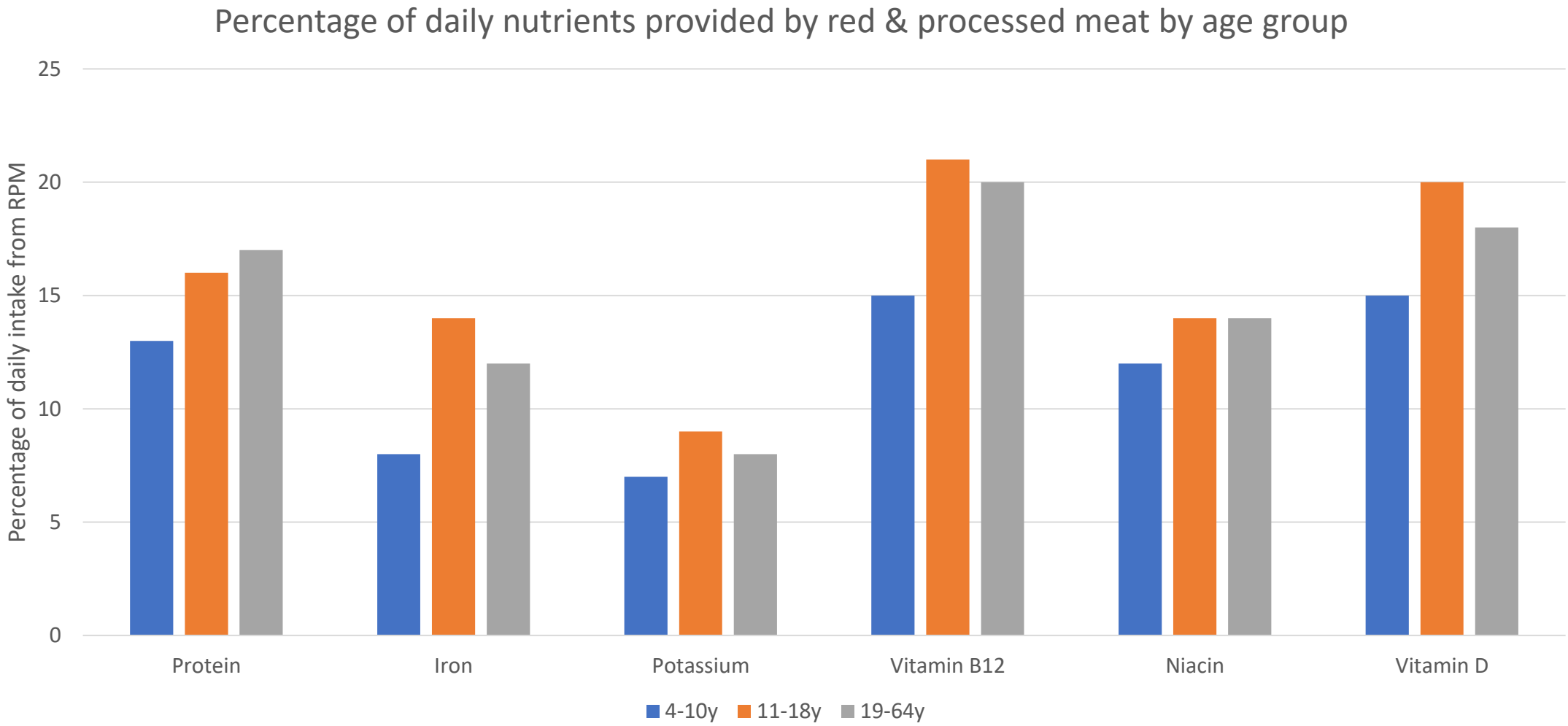


WHAT DOES LRNI MEAN?
Having intakes below the LRNI is a risk of deficiency at population level

PLUS:
Around 20% have a low vitamin D status <25 nmol/L

National Diet & Nutrition Survey 2025

Red & processed meat makes a significant dietary contribution



National Diet & Nutrition Survey 2025

Health benefits vs. health risks

Removing meat from the diet is not risk-free

Benefits of moderate meat consumption	Risks related to high meat consumption	Risks related to meat avoidance
Protein amount and quality related to satiety, growth, supporting sports performance & exercise	Higher risk of colo-rectal **cancer** at intakes >500g per week, especially for processed meats	Risk of deficiency of **vitamin B12** and need for daily supplementation
Micronutrients in meat helping populations achieve dietary recommendations, especially vulnerable consumers (children, girls, elderly)	Higher intakes of **saturated fat** and **sodium** from processed meats and meat products (pies etc) impacting on cardiovascular disease risk	**Lower intakes** of omega-3 fats, zinc, iron & vitamin D **Poor quality** plant proteins replacing meat
Higher **bioavailability** of haem iron – benefit for females of child-bearing age who are at greater risk of iron deficiency	Greater exposure to **biological markers** linked with higher risk of type 2 diabetes and cardiovascular disease (unproven in humans)	**Stunted growth** in infants and toddlers **Greater risk of bone fractures** in vegans (calcium, vitamin D, low protein)

Clinical studies on red meat **(RM)**

Mostly beneficial

Intervention	RM intake/day	What was measured?	Outcome
RM vs carbohydrates	70g	Body composition	RM better
RM vs plant-based meat	200g	Inflammation	No difference
Pork vs LF diet	35g	Cognitive function	RM better
RM vs carbohydrates	160g	Quality of Life index	RM better
RM vs soy protein	Not stated	Weight loss	No difference

Clinical studies on cardiovascular risk

Mostly neutral

Cardiovascular Risk Factors: RCTs comparing daily LEAN red meat versus other dietary options

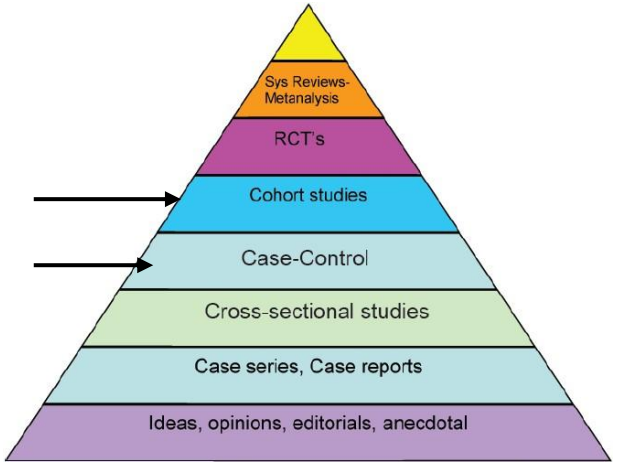
Ref.	Intervention	RM intake g/day	What was measured?	Conclusion
1	Chicken vs. RM	85 g	Lipids	No difference
2	RM once/day vs. soya protein vs. soya nuts	-	BP, lipids	No difference
3	White meat vs. RM	170 g	Lipids	No difference
4	White meat vs. RM	170 g	Lipids	No difference
5	RM vs. high CHO diet	170 g	Lipids	RM better
6	High RM vs. usual diet (43% energy from CHO)	180 g or 250 g	Systolic BP	RM better
7	RM vs. high CHO diet	85 g	BP	RM better
8	High RM vs. low RM	150 g	Lipids	No difference
9	Lamb vs. chicken	-	Lipids	No difference
10	Pork vs. white meat or beef	140 g	Lipids	No difference
11	Horse meat vs. usual diet	50 g	Lipids	RM better
12	RM vs. DASH diet (low salt, high fruit/veg diet)	150 g	BP	No difference
13	Pork vs. chicken/fish	-	BP	No difference

Complete Nutrition 19(3): 50-52; 2019

Cancer risk – all from observational studies

Risk: high meat

	WCRF 2017	SACN 2010	IARC 2015
Evidence used:	Meta-analysis of observational cohort studies	Desk review of observational meta-analyses	Meta-analysis of observational cohort studies
RR red meat (RM)	1.12 for each 100g serving	1.17 comparing high vs. low intakes	1.17 for each 100g serving
RR processed meat (PM)	1.16 for each 50g serving	1.16 comparing high vs. low intakes	1.18 for each 50g serving
Association ranked as:	Convincing PM Probable RM	Probable RPM	Sufficient PM Limited RM



World Cancer Research Fund

sacn Scientific Advisory Committee on Nutrition

International Agency Research on Cancer

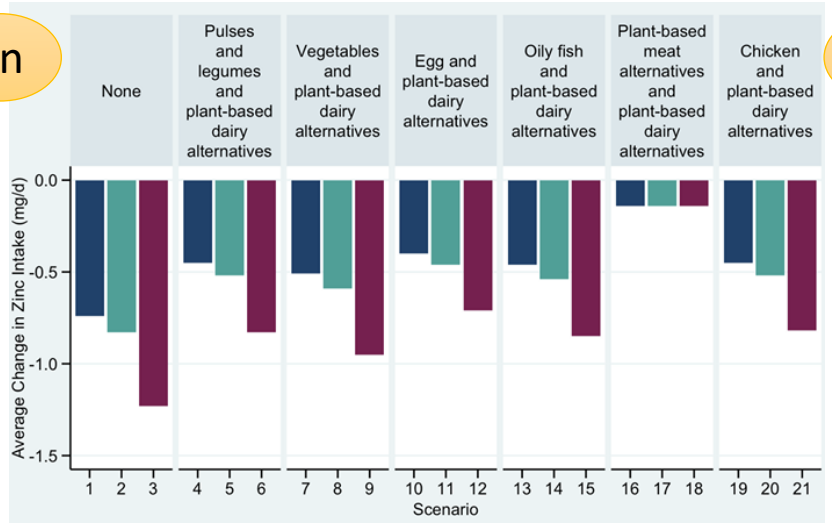
World Health Organization

What does a relative risk of 18% mean for cancer cases and how does it compare to other risks?

What if you …	Relative Risk	Increased risk compared with baseline	Details of comparison
Ate >50g of bacon every day for life	1.18	18%	Actual risk for over 75s changes from 3.5% to 4.14% = 1 extra case of colorectal cancer per 200 adults
Smoked >30 cigarettes a day	53.7	5370%	Increased risk of cancer compared with non-smokers
Had a body mass index over 30	7.28	728%	Increased risk of type 2 diabetes compared with people with a BMI<25

Food Standards Scotland modelled meat and dairy reductions finding increased nutritional inadequacy in adults & children

Zn



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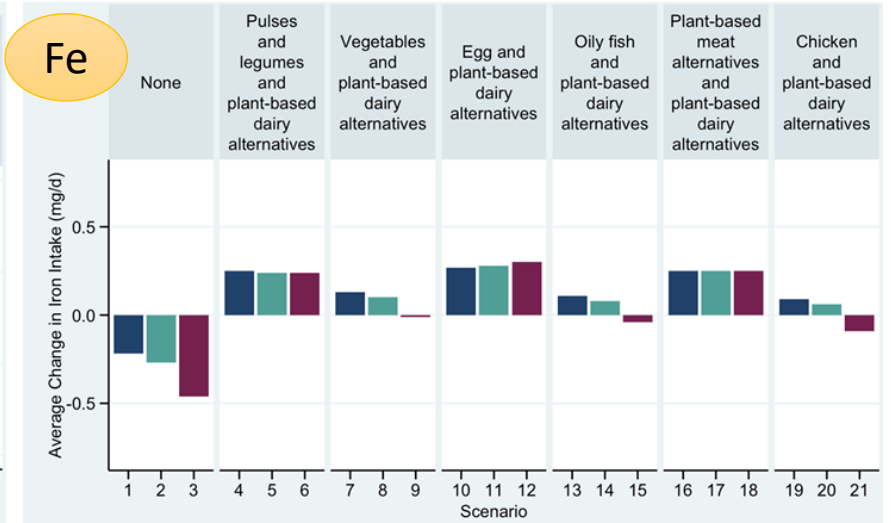
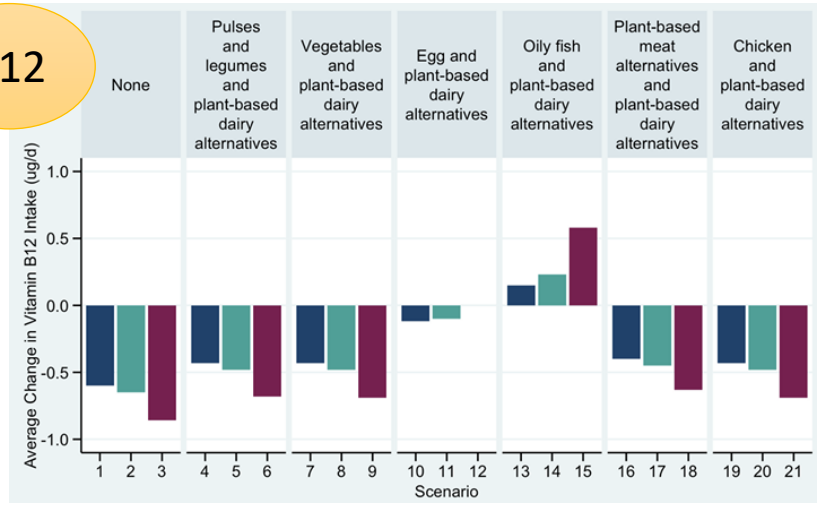


B12



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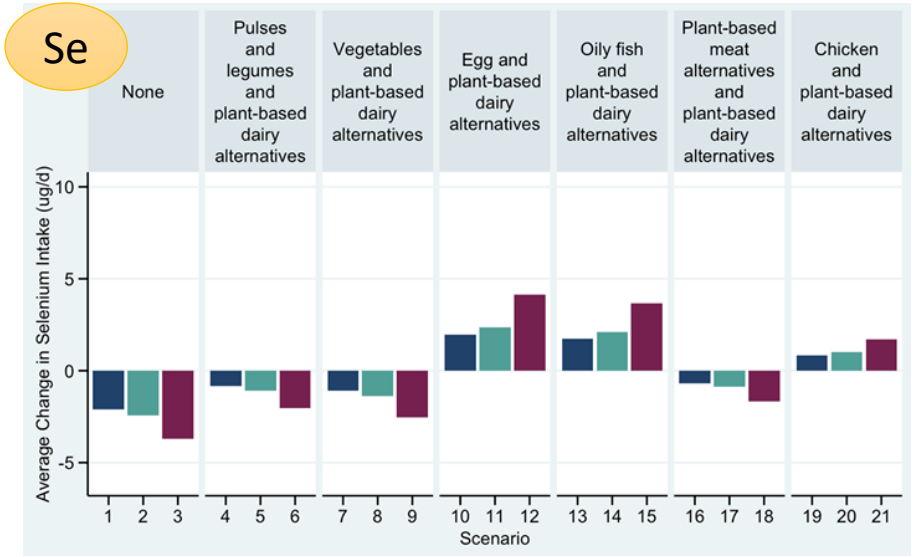
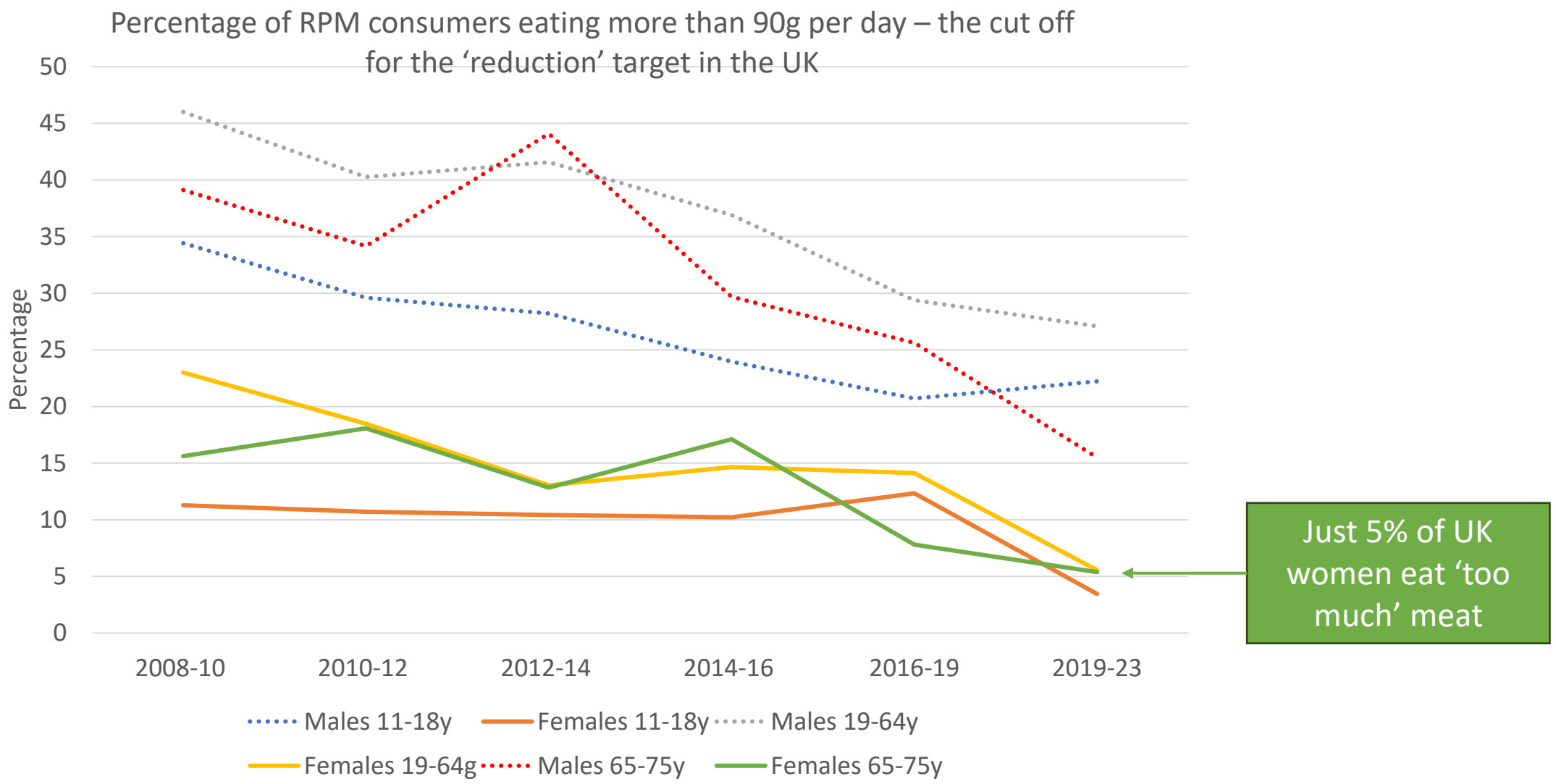


Dark blue bars = 20% reduction in dairy and >70g/day RPM

Teal bars = 20% reduction in dairy and <60g/day RPM (-20%)

Red bars = 20% reduction in dairy and <31g/day RPM (-35%)

The blanket ‘reduce red meat’ message is **no longer appropriate** for females



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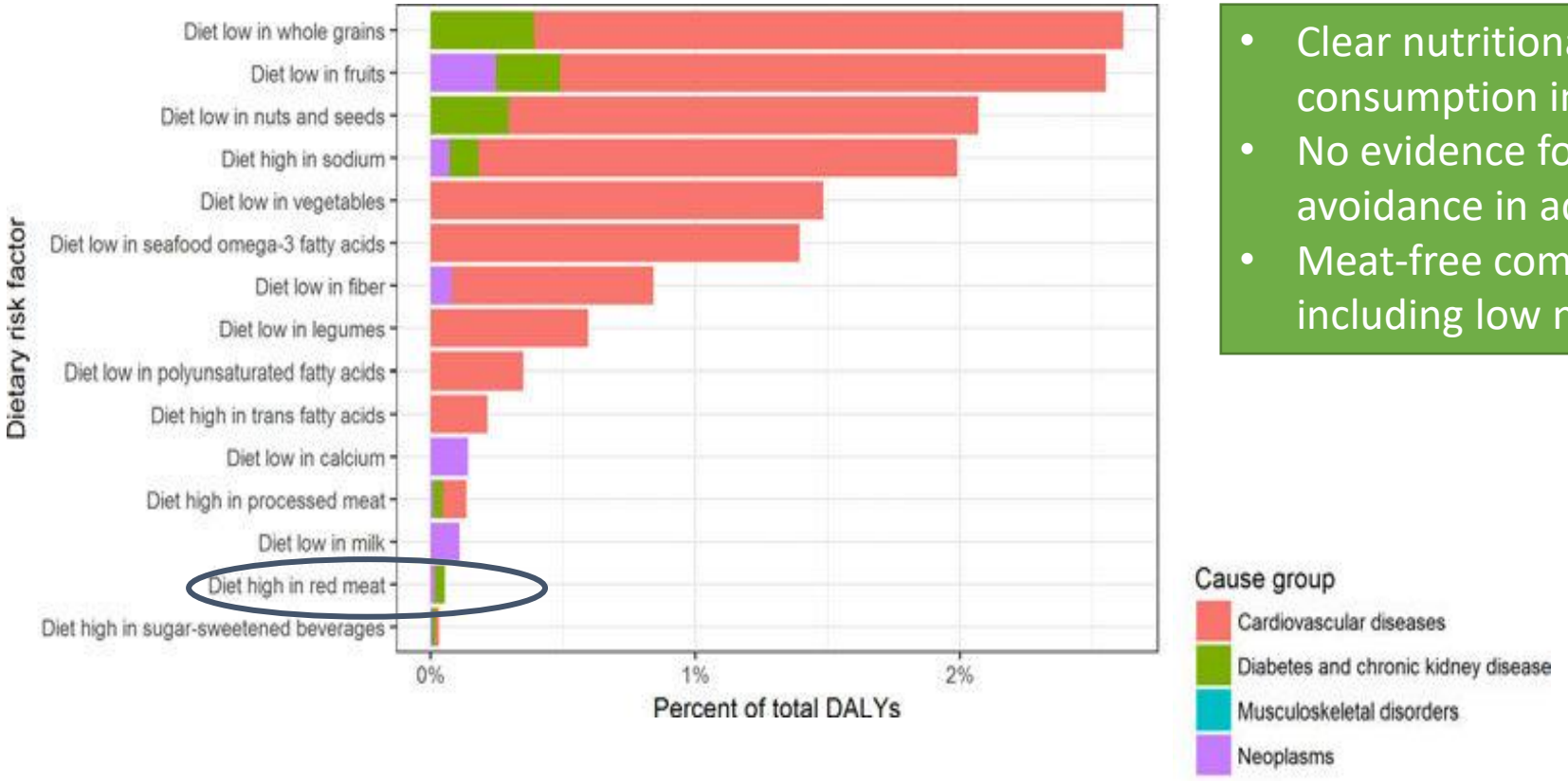
Conclusion



- Clear nutritional benefits to moderate lean meat consumption in a balanced diet
- No evidence for health benefits for meat avoidance in adulthood – see chart
- Meat-free comes with its own health risks including low nutrient intakes

Global Burden of Disease study (2017); DALYs = disability-adjusted life years