

DEPARTMENT OF PRIMARY CARE HEALTH SCIENCES



Food, health and environment: towards a more sustainable diet

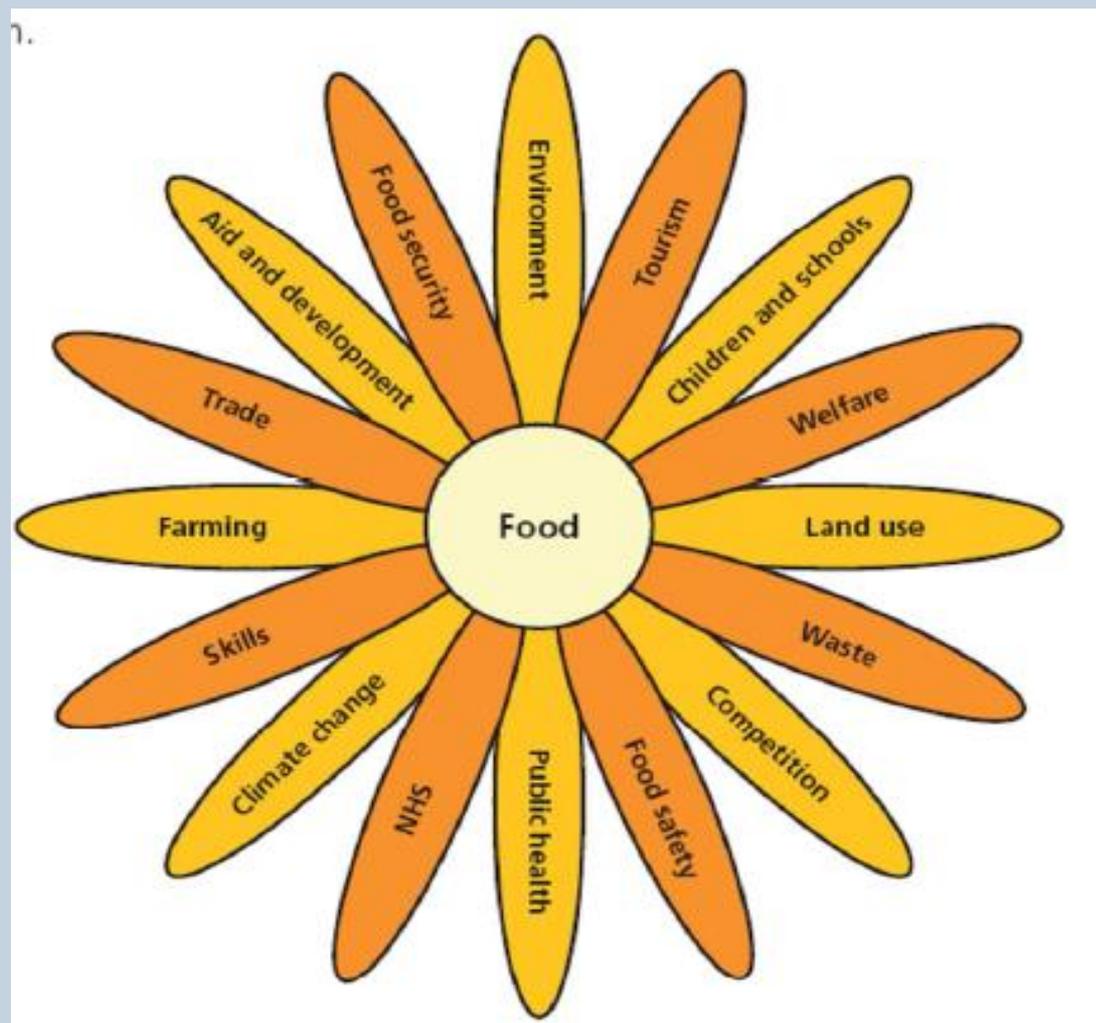
Professor Susan Jebb

Department of Primary Care Health Sciences

27th November 2013

Food is a complex system

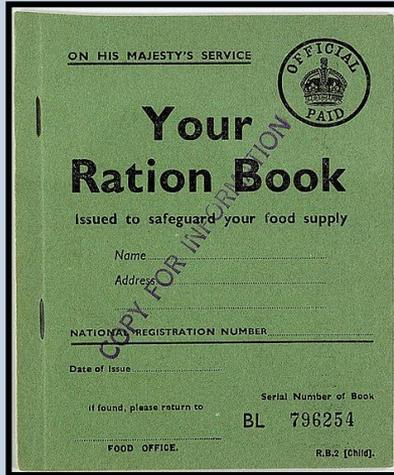
Dietary advice for consumers needs to optimise health within the constraints of a sustainable food supply



Food and drink industry is a major contributor to the UK economy

- The food and grocery industry in UK provides 1 in 7 jobs (3.5m people from farm to plate)
- Food manufacturing is UK's largest manufacturing sector representing 16% of manufacturing output
- Over 350,000 dedicated food outlets in the UK
- Over 8,000 new products launched every year
- Food and drink exports have shown 7 years of continued growth, worth £12.2bn in 2012

Agriculture dominated by drive to produce more food – mostly energy



Changing power and influence in the food system

- 1920-70's: Governments sought to intervene in agricultural production and markets to boost output, with consumers as passive recipients
- 1980's: Shift towards more open markets with farmers competing in a global market with increasingly efficient systems of food manufacture and distribution
- 1990's: Consumers in the driving seat of the modern food economy with industry competing to meet their demands

Expectation

That consumers would choose well and the newly flexible food supply chain would make a healthy diet available, affordable & acceptable

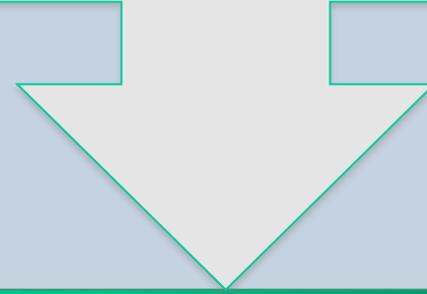


Reality

Consumers not informed or did not prioritise health; industry had incentives to mobilise demand for popular, cheap items

Expectation

That economies would gain through a market-oriented food sector & healthier population



Reality

While some consumers became healthier, inequalities increased and the cost of diet-related disease soared

Food – an unsustainable system

We face:

- Supply side pressures: resource scarcity, environmental degradation, climatic instability
- Demand side pressures: Population growth, demographic changes, changing diets

Within the context of:

- Insufficient, ineffective or perverse governance systems

Leading to increasing inequalities:

- In UK – food poverty and health disparities increasing
- Globally – poorer countries suffering the most

How can we feed 9 billion people by 2050?

Heavy reliance on supply side measures to meet growing demand

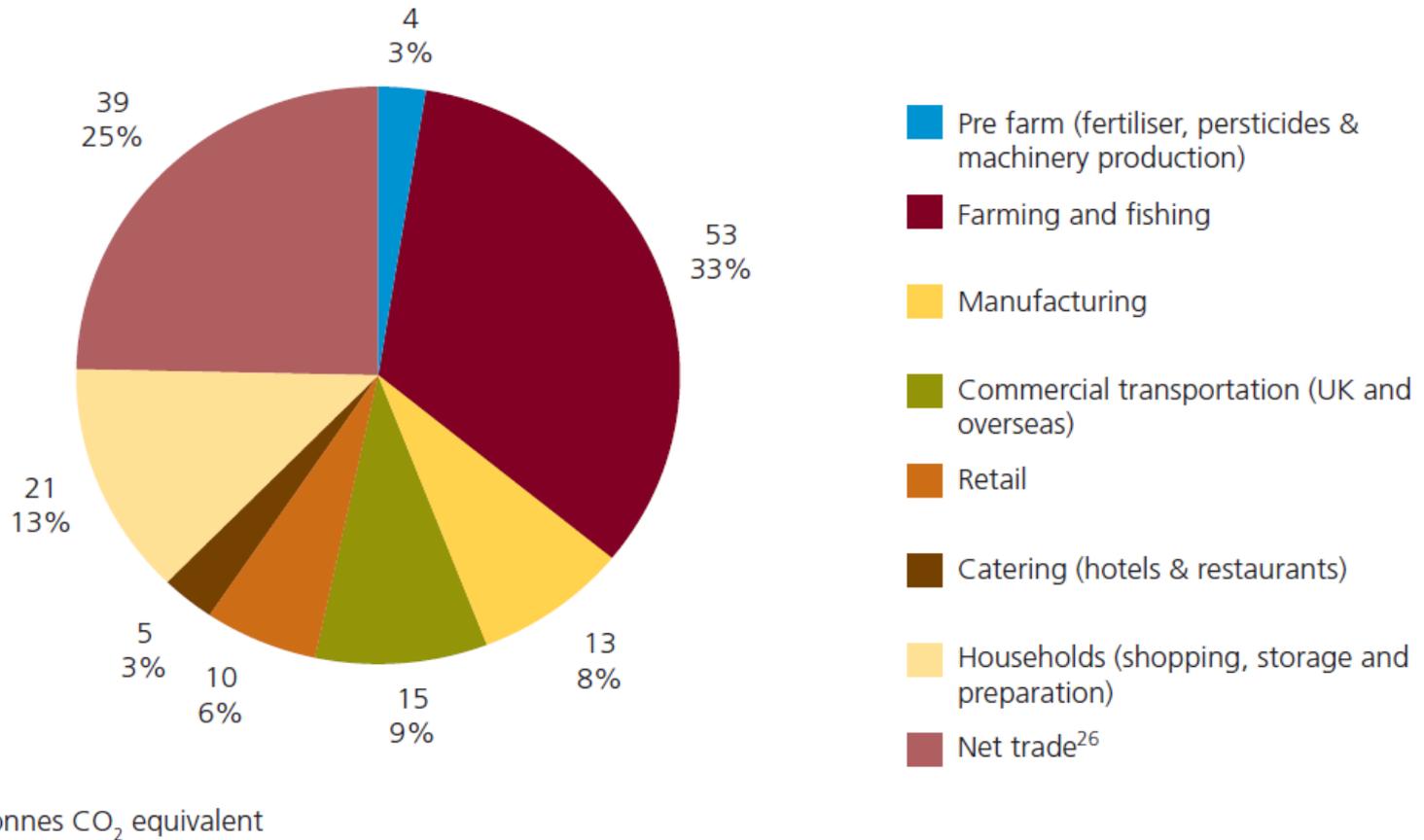
Sustainable intensification:

- Increasing yields
- Increasing efficiency in food chain
- Enhancing nutritional benefits per MJ

Together with:

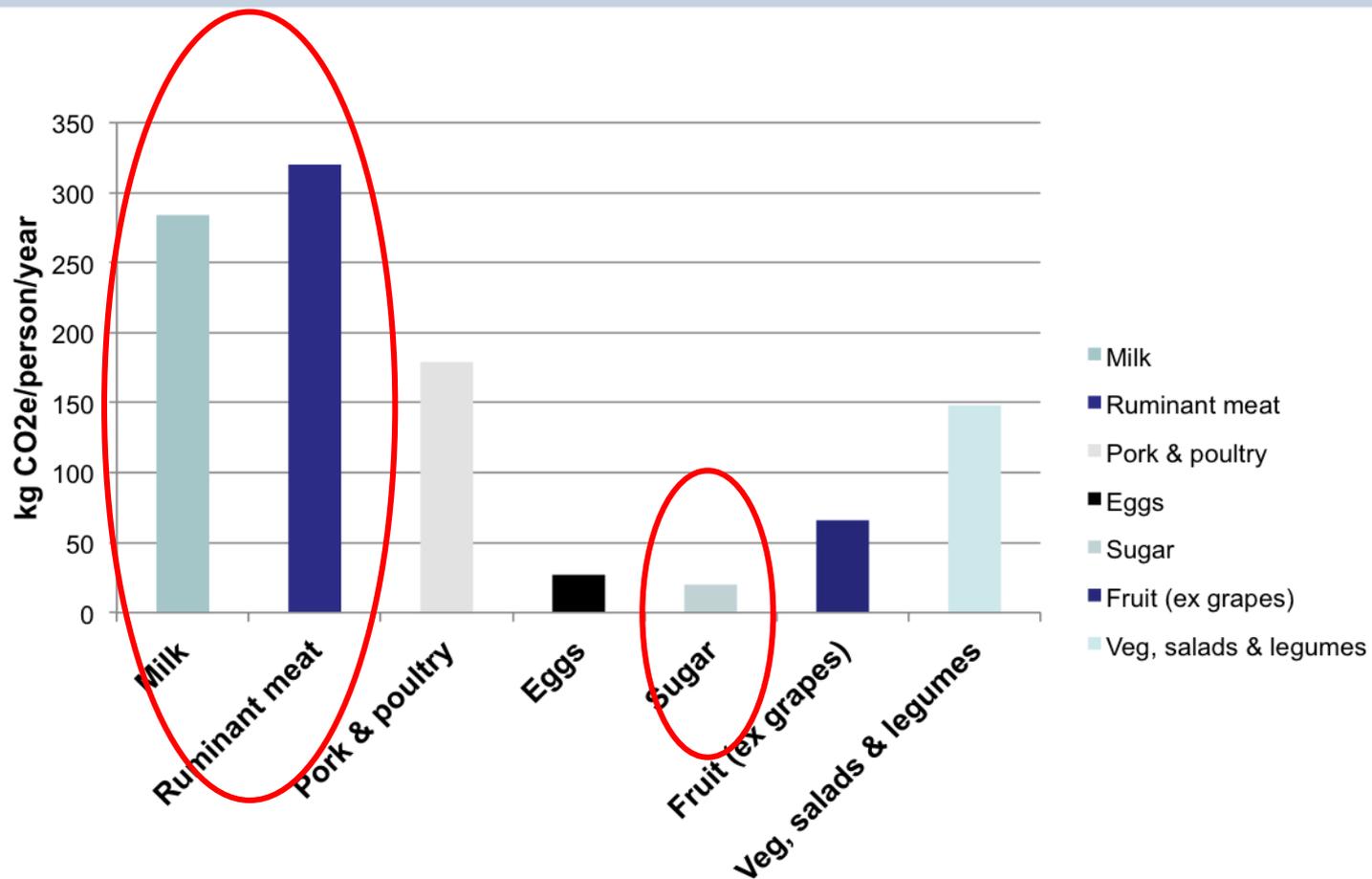
- Reducing waste

Food chain contributes 18% of total UK GHG emissions

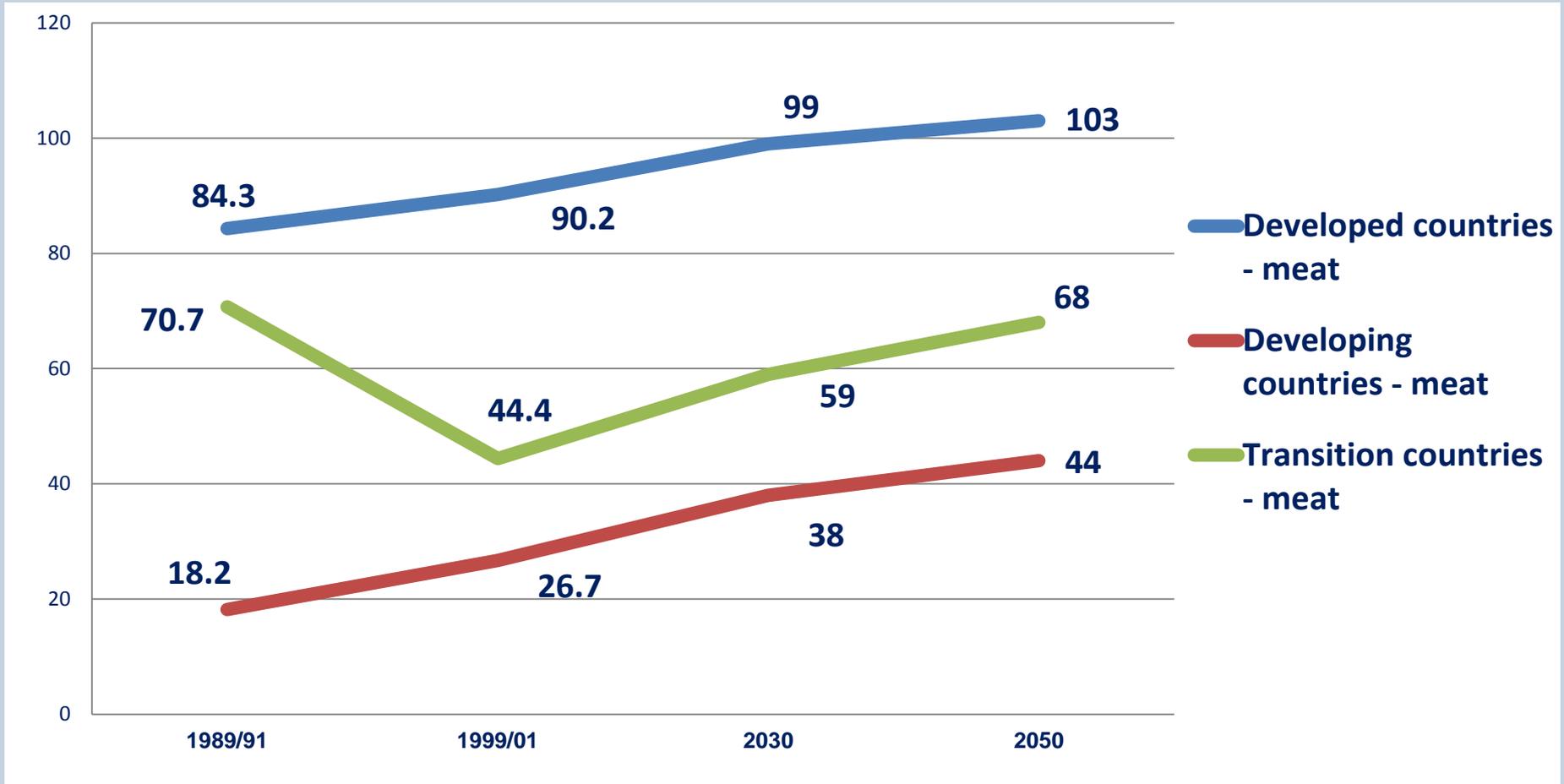


Source: Environmental Statistics (Defra)

GHG emissions by selected food groups (UK average per capita, up to RDC)



Predicted global trends in consumer demand for meat (kg/person)



The global livestock challenge

40% grains consumed

12-18% GHG emissions

70% agricultural land

15% irrigation water

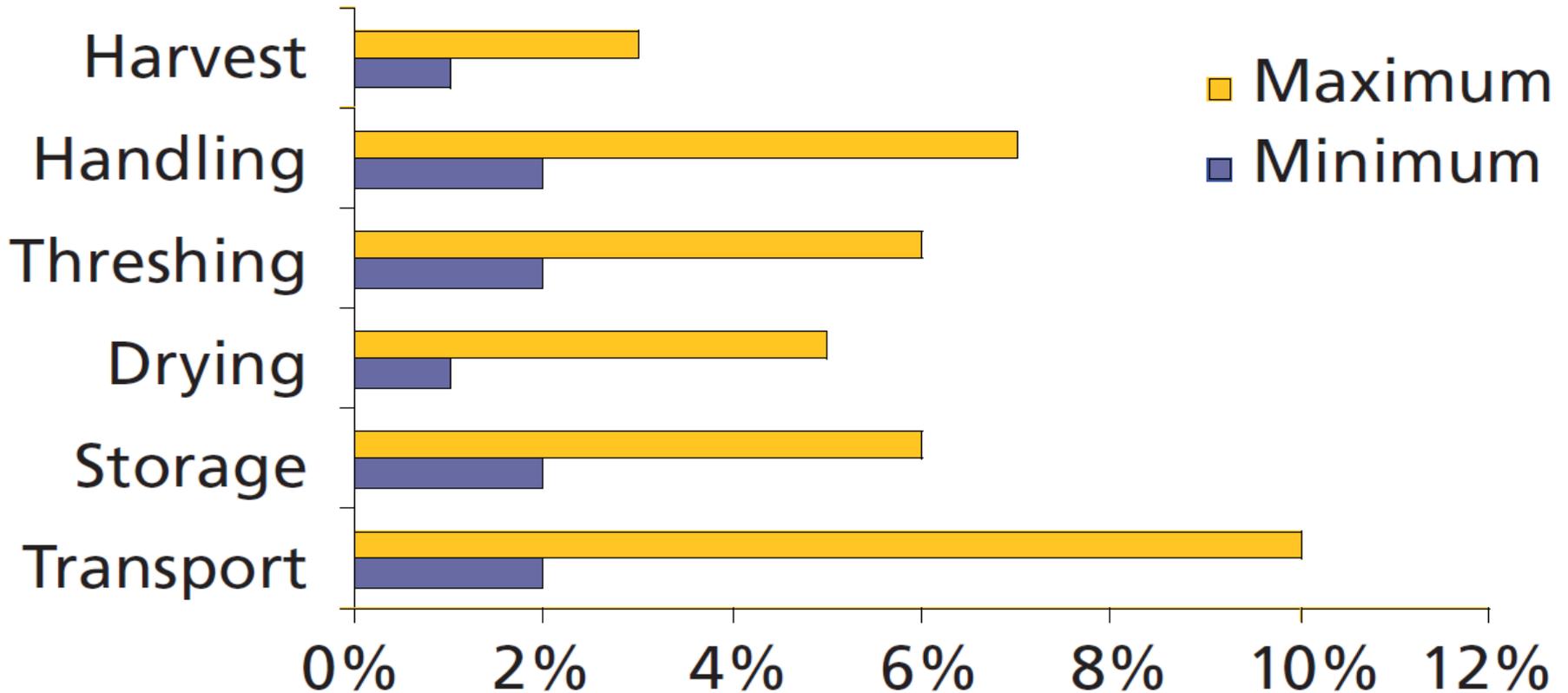


Main cause of deforestation, biodiversity loss & land degradation

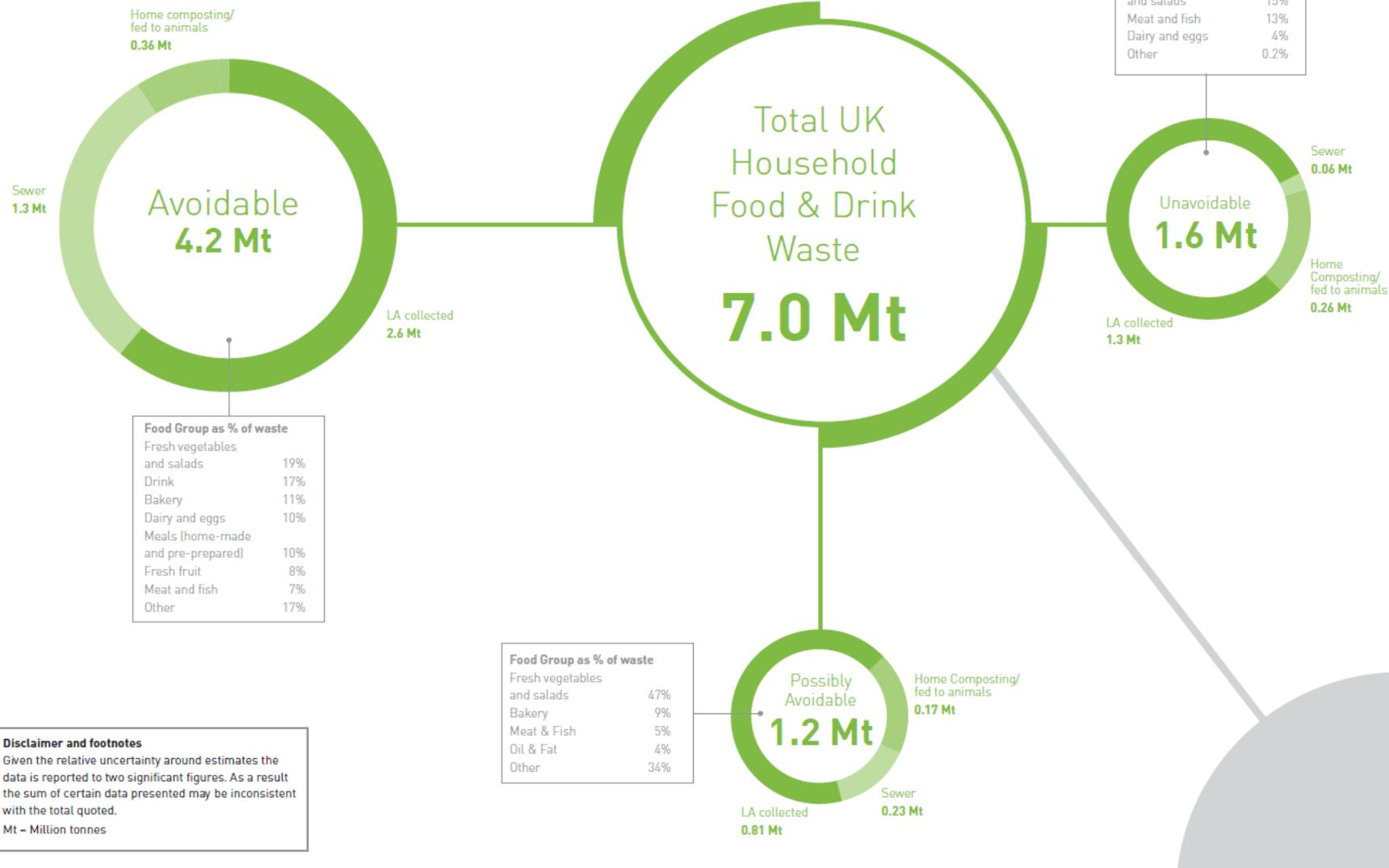
Major source water pollution



More than a third of rice harvested in SE Asia may be lost before reaching consumers



The scale of food waste in UK



Disclaimer and footnotes
 Given the relative uncertainty around estimates the data is reported to two significant figures. As a result the sum of certain data presented may be inconsistent with the total quoted.
 Mt – Million tonnes

Food waste

Avoidable food waste, mostly 'not used in time' accounts for 19% of all food and drink brought into the house, including:

- 13 billion portions of fruit/vegetables/salad
- 24 million slices of bread
- 1.2 million yogurts

Eliminating avoidable waste would lead to:

- Economic savings to consumers of £5.6 billion per year
- Carbon reduction of 17 million tonnes
- 19,000 km² land available for other uses



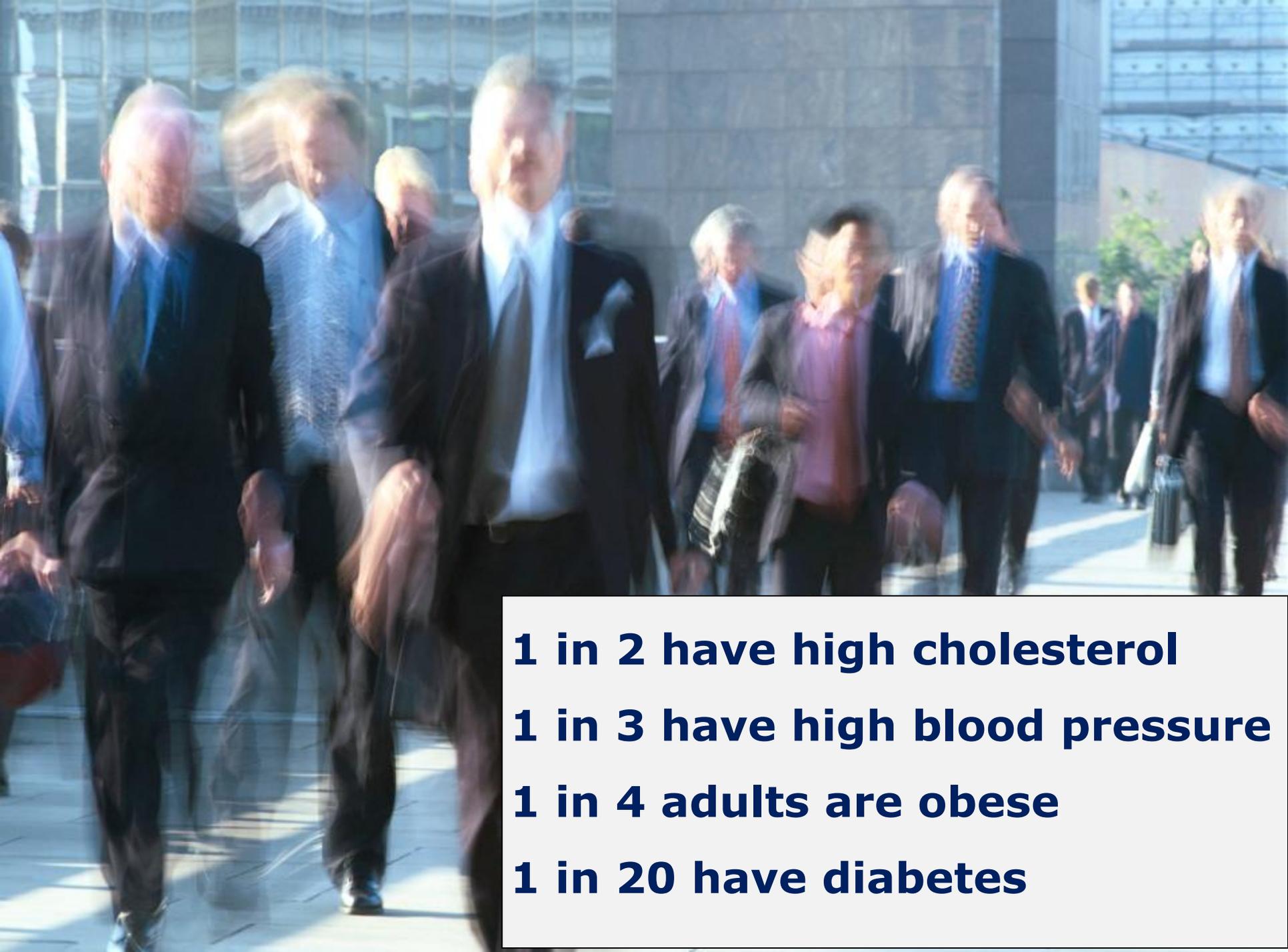
This report provides estimates of the amount of food and drink waste generated by UK households in 2012. It includes details of the types of food and drink wasted, why it is thrown away, and where the material goes. It updates WRAP's 2007 estimates of household food and drink waste.

Consumer demand is at least as important as supply-side action



GHG mitigation potential by 2050 (vs. business as usual)

	GHG reduction [Gt CO₂ – eq/yr]
Reductions in food supply chain, losses and waste	0.76 – 1.5
No ruminant meat diet	5.8
No meat diet	6.4
Plant based diet	7.8
“Healthy” diet (Harvard eating plan)	4.3



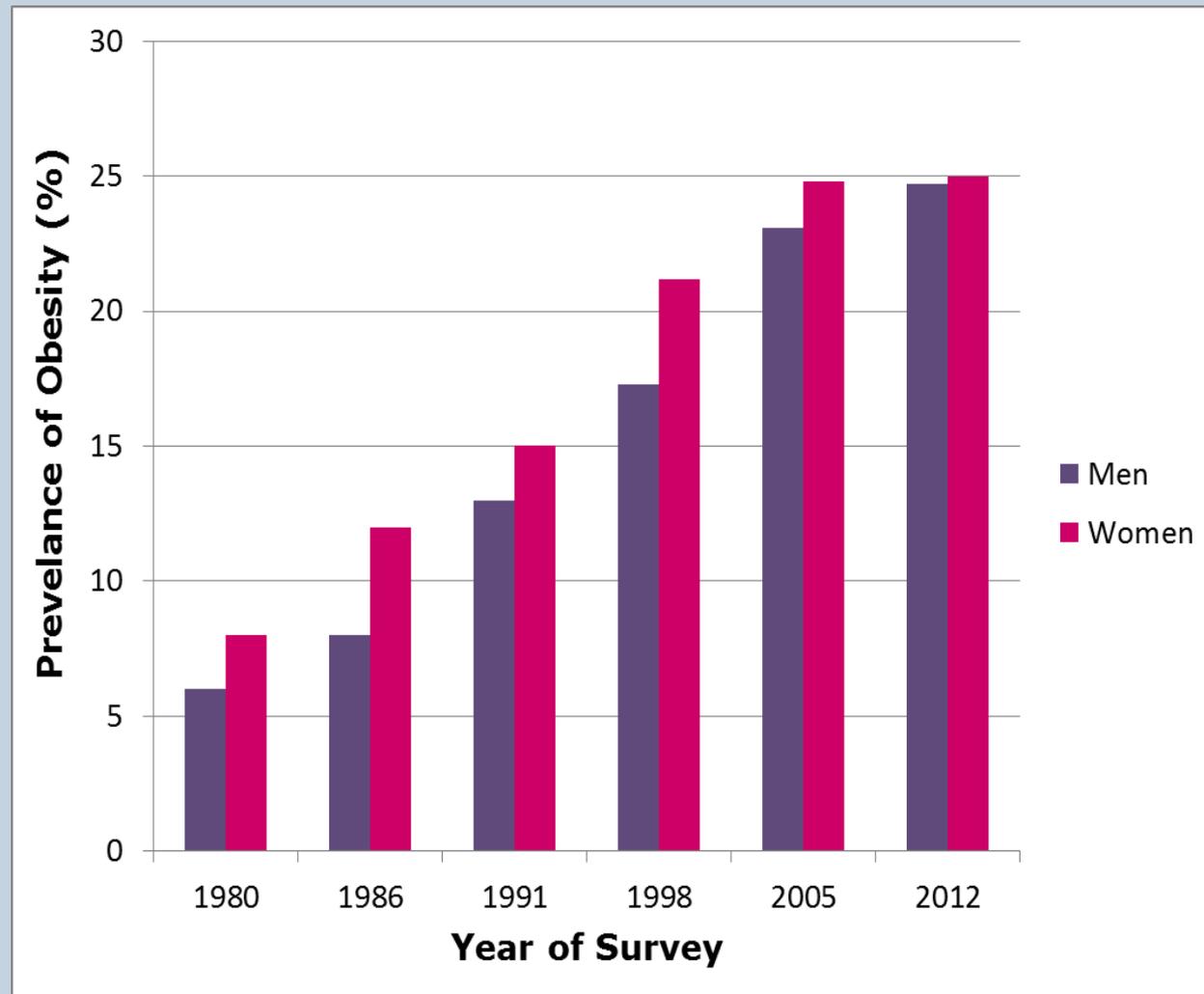
1 in 2 have high cholesterol
1 in 3 have high blood pressure
1 in 4 adults are obese
1 in 20 have diabetes

What is a healthy diet?

- **Achieve energy balance** and a healthy weight
- **Limit energy intake from total fats** and shift fat consumption away from **saturated fats to unsaturated fats** and towards the **elimination of trans-fatty acids**
- **Increase** consumption of **fruits and vegetables**, and legumes, whole grains and nuts
- **Limit** the intake of **free sugars**
- **Limit salt** (sodium) consumption

Obesity – the BIG problem

- ◆ 26% adults are obese and further 38% overweight
- ◆ 16% young people (2-15y) are obese and a further 14% overweight
- ◆ Direct costs to NHS estimated at £5.1 billion/y
- ◆ Indirect costs to wider economy approx. £16 billion/y



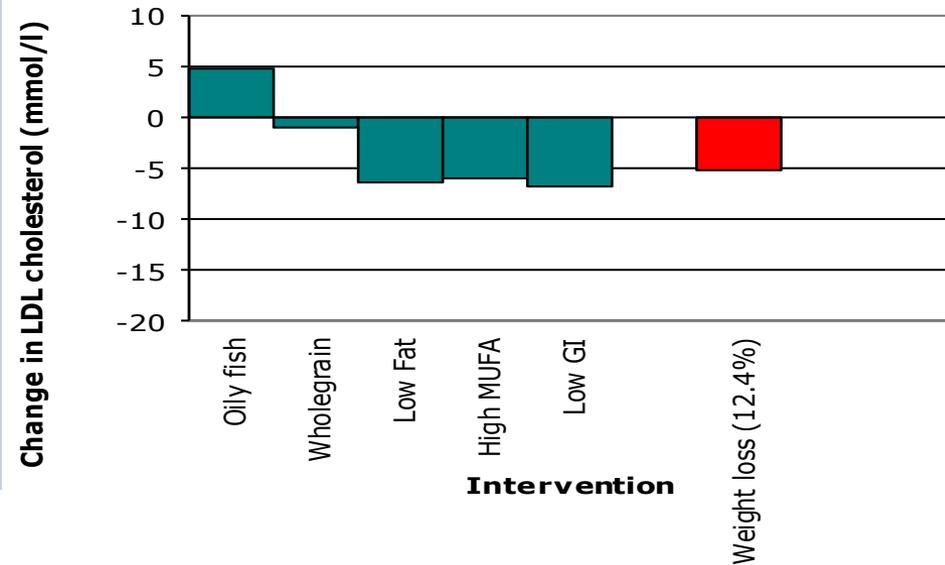
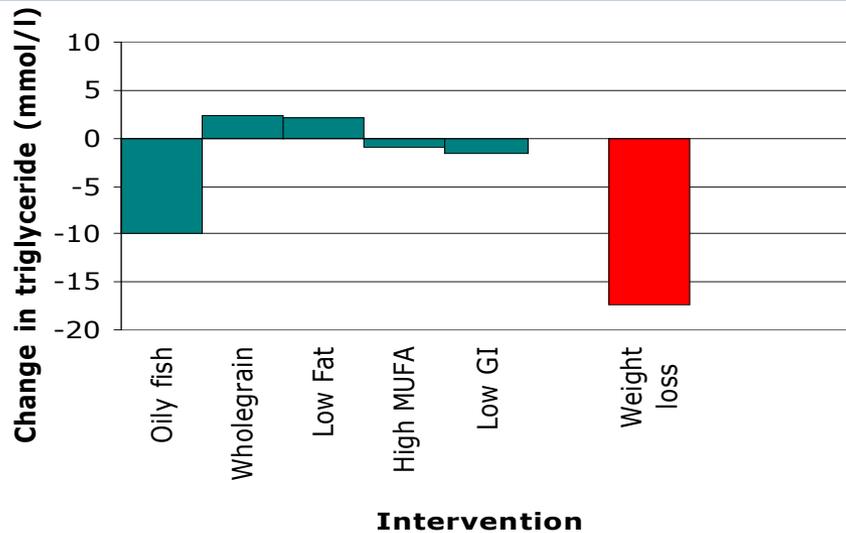
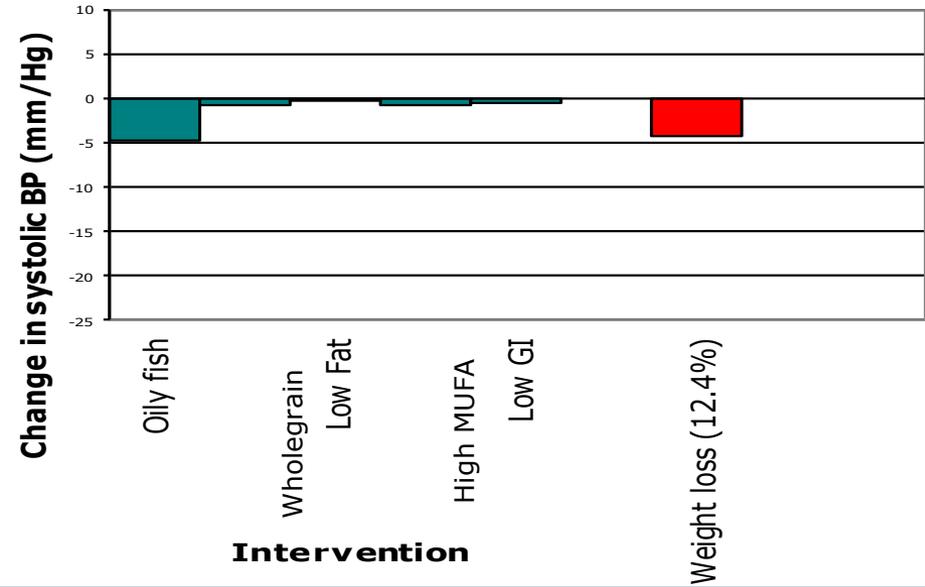
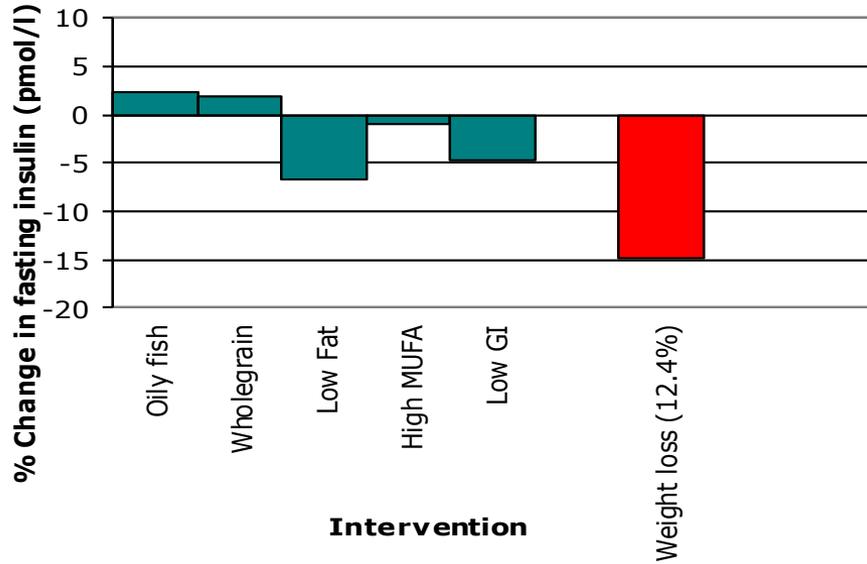
Improvements in diet quality may avoid 70,000 premature deaths in the UK

Modelling suggests that a shift to the recommended balanced diet could yield significant health and economic benefits

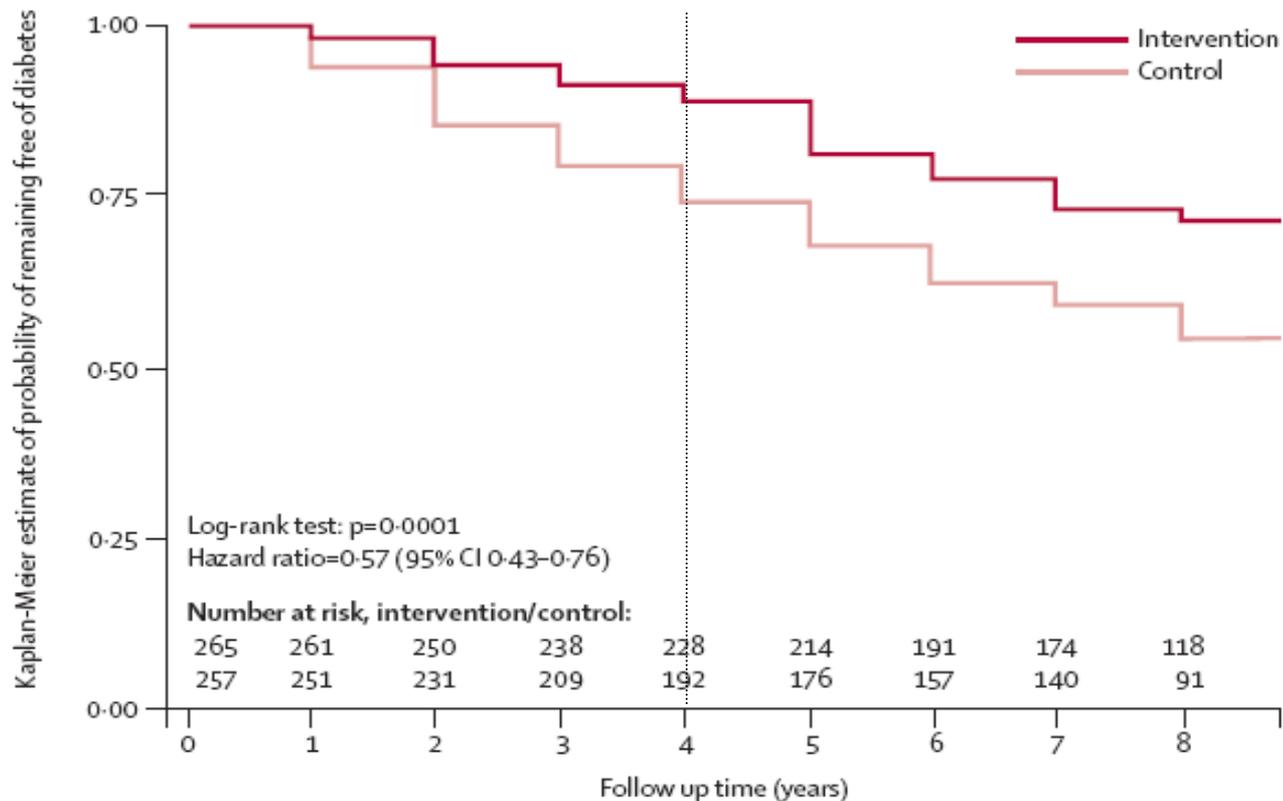
Avoided premature mortality and quality adjusted life years gained, UK¹

	Premature mortality avoided	Quality adjusted life years gained)
Increase fruit and vegetable intake by 136g/day	42,000	411,000
Reduce daily salt intake from average 9g to 6g	20,000	170,000
Cut sat fat intake by 2.5% of energy	3,500	33,000
Cut added sugar intake by 1.75% of energy	3,500	49,000

Dietary change reduces cardiovascular risk factors



Lifestyle intervention reduces the incidence of type 2 diabetes



Intervention:
Diabetes Incidence =
4.3/100 person y

Control:
Diabetes Incidence =
7.4/ 100 person y

End of active intervention at 4 y (reduce energy intake, decrease fat and SFA, increase fibre, increase activity)

Fruit and vegetables

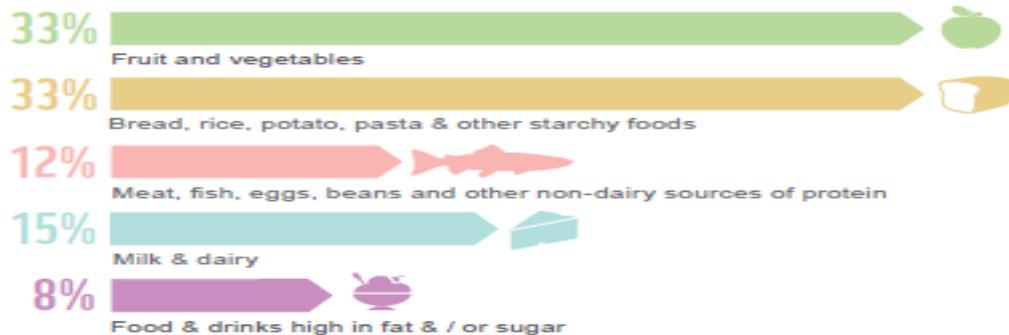
Bread, rice, potatoes, pasta and other starchy foods



Meat, fish, eggs, beans and other non-dairy sources of protein

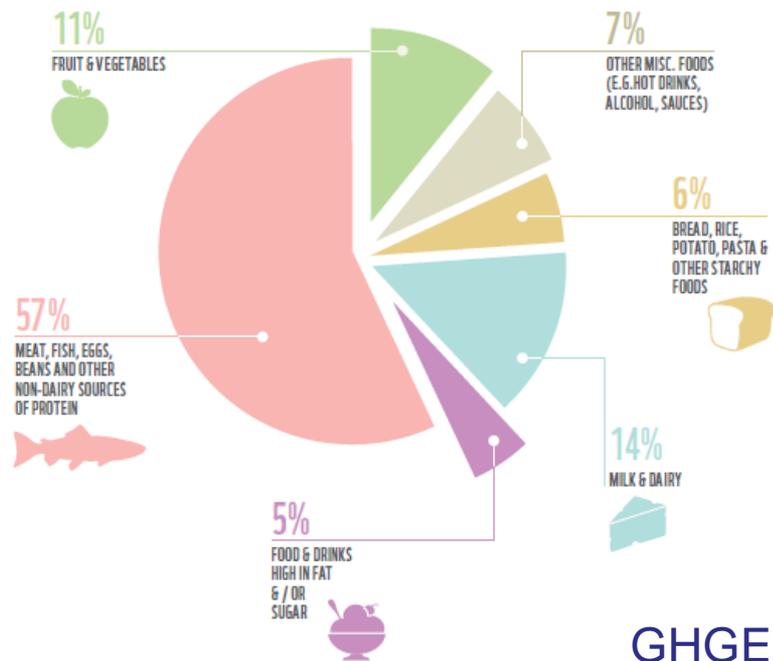
Food and drinks high in fat and/or sugar

Milk and dairy foods



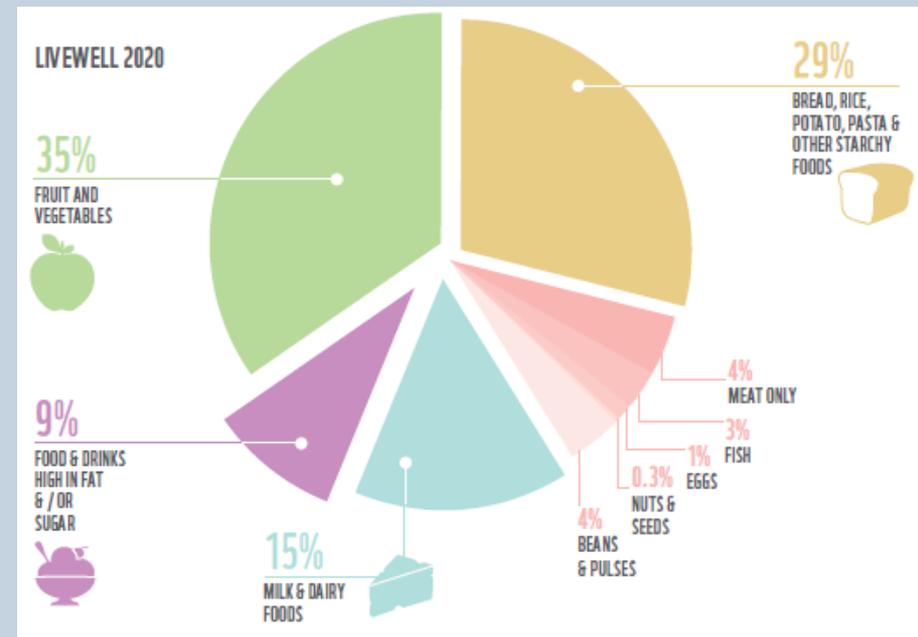
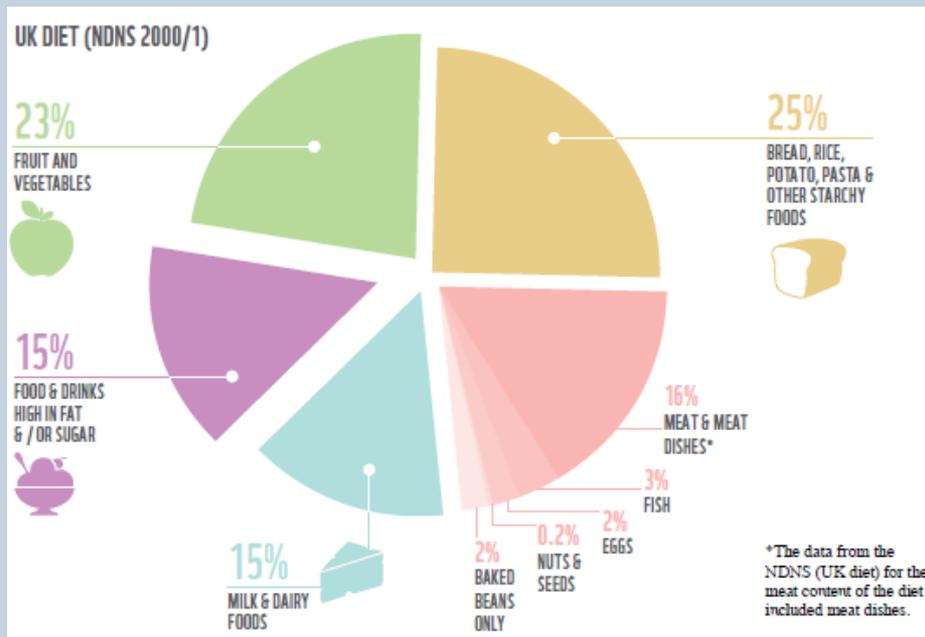
Total 101%*

The EatWell Plate

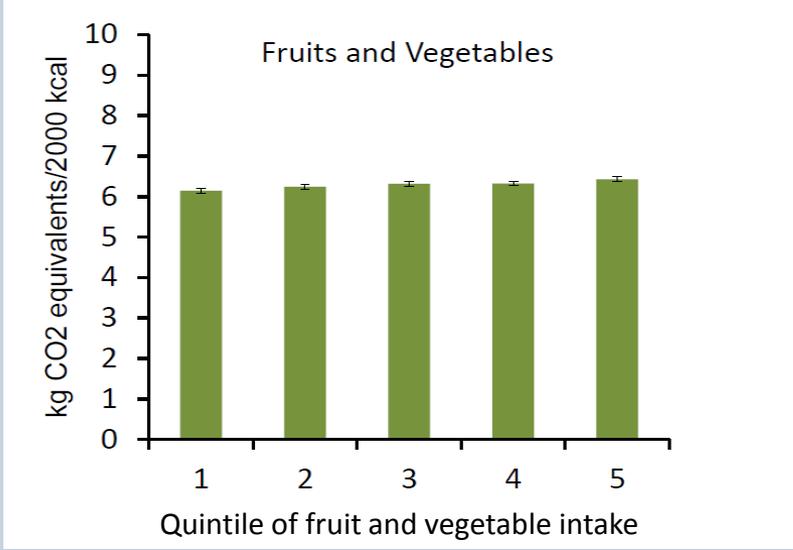
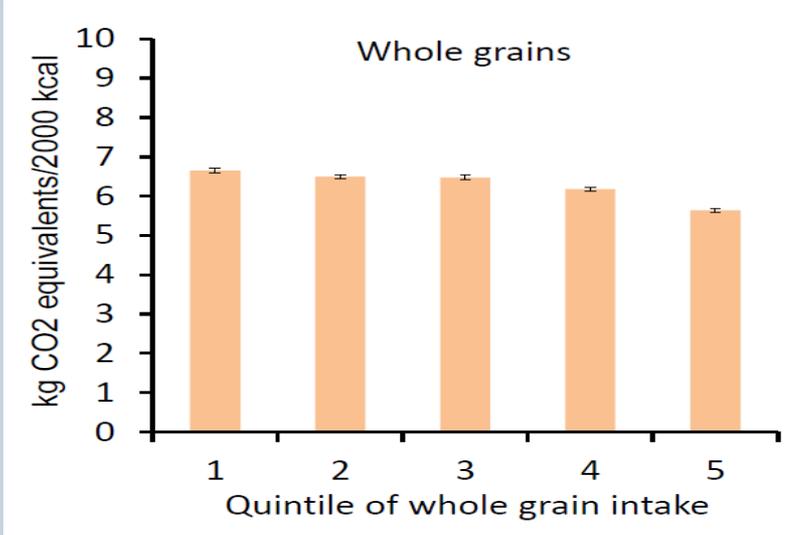
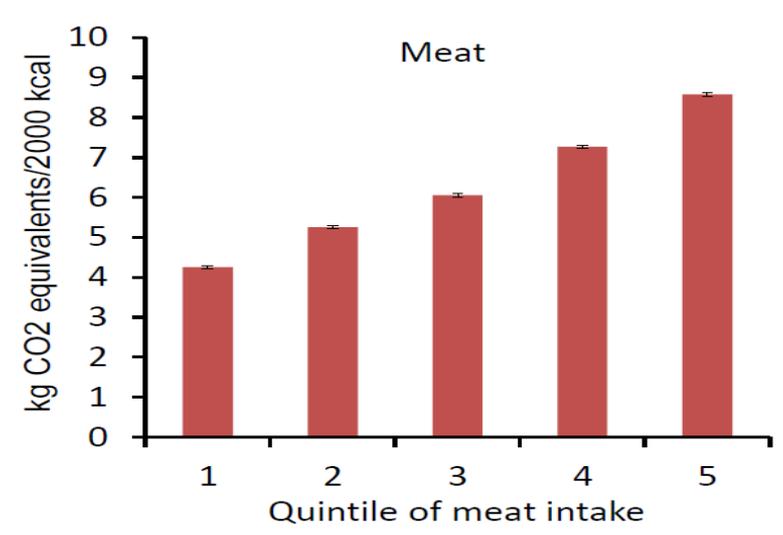


GHGE

Modelling changes in dietary patterns to achieve reductions in GHGE from food of 25% by 2020



Diet composition and greenhouse gas emissions



Means, 95% CIs adjusted for ages, sex, total dietary energy intake; n=24,293
Adapted from Monsivais, Scarborough, Lloyd et al., in preparation

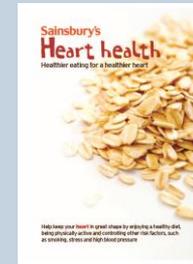
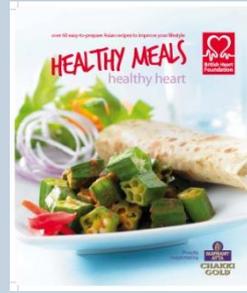
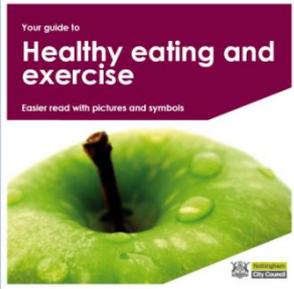
How to make dietary change happen?



Dietary change is slow

	NDNS 2000-2001		NDNS 2009/10		Targets
	Men	Women	Men	Women	
Energy (kcal)	2308	1635	2200	1638	
%Fat	35.5	34.7	35.2	34.4	35
%SFA	13.3	13.1	12.9	12.6	11
%NMES	13.5	12	12.9	12.2	10
Portions of F&V	2.7	2.9	3	3.1	5

Traditional health promotion efforts have relied heavily on education



NHS choices Your health, your choices

Health A-Z | **Live Well** | Carers Direct | Health news | Health services near you

Food and diet

View all 114 topics

Popular topics

- Alcohol
- Couch to 5K
- Dental health
- Fitness
- Five a day
- Food and diet**
- Healthy eating
- Lose weight
- Mental health
- Mental wellbeing
- Military medicine
- Sexual health
- Stop smoking
- Winter health
- View all 114 topics

Why most of us should eat fewer calories

Many of us are eating too much, and not being active enough. Find out how much you should eat, and how to cut the calories.

Eight tips for healthy eating

Start eating well with these eight tips for a healthy diet.

Nutrition essentials

- The eatwell plate
- Fruit and veg
- Starchy foods
- Milk and dairy
- Meat
- Eggs
- Pulses and beans
- Fats
- Sugars
- Salt
- Drinks
- Vitamins and minerals

Tools

- 5 A Day effort planner
- Recipes to make healthy eating simple
- BMI healthy weight calculator
- Check your BMI and get tailored advice
- Healthy eating self-assessment
- Find out if your diet is healthy

Have you visited Roots & Fruits?

Buy your '5 a day' from our new Community Food Coop - fresh fruit, veg and salad available every week!

Veg £3
Fruit £3
Exchange healthy vouchers

Crackin' Cooking

A FREE 6 week programme of activities to lead you and your family to a healthier lifestyle

Spring / Summer 2011

How much does it cost?
It's free! All we ask is you turn up to as many sessions as you can. Places are limited so please let us know if you are unable to make it - that way we can offer a place to someone else.

How soon can I join?
Whenever you're ready to join please contact the team to book a place. We'll take your details and let you know your start date.

To book a place or for more information on Crackin' Cooking please contact:
Caia Park Health Team (ask for Jo)
Tel: 01978 356351

Open for orders & collection every Thursday 11-12 and 2.00 - 3.30pm in the Green Building, Caia Park Partnership

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You are here: Home - Information Leaflets - Health Promotion - Eat More Fruit and Vegetables

Eat More Fruit and Vegetables

Healthy eating includes eating at least five portions, and ideally 7-9 portions, of a variety of fruit or vegetables each day. Fruit and vegetables include fresh, frozen, tinned, or dried varieties, and fruit juice. On average, people who eat lots of fruit and vegetables tend to be healthier and live longer.

What are the health benefits if I eat enough fruit and vegetables?

- You have a lower chance of developing cardiovascular diseases due atheroma ('hardening of the arteries'). For example, heart disease, peripheral vascular disease, or a stroke.
- You have a lower chance of developing some cancers such as bowel and lung cancer.
- Fruit and vegetables also:
 - Contain lots of fibre which helps to keep your bowels healthy. Problems such as constipation and diverticular disease are less likely to develop.
 - Contain plenty of vitamins and minerals, which are needed to keep you healthy.



Focusing on behaviour ...

Reflective behaviour

- Driven by decision-making
- Values the future
- Slow
- Requires high cognitive capacity ('willpower')



... leads to new approaches

Reflective behaviour

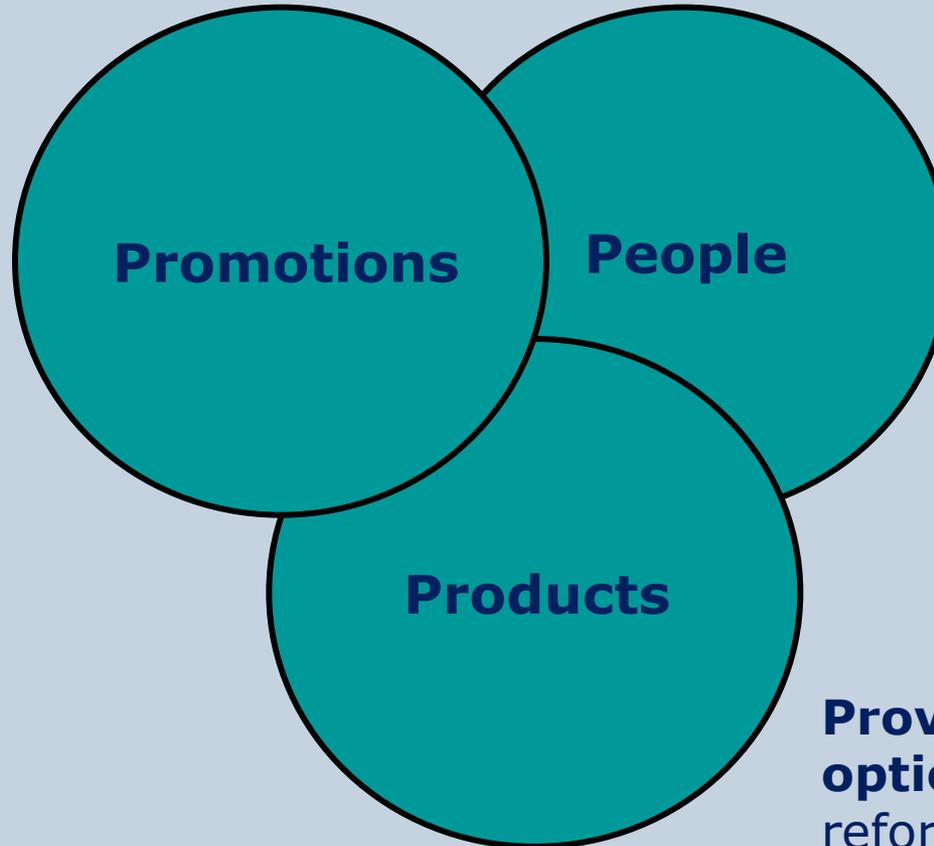
- Driven by decision-making
- Values the future
- Slow
- Requires high cognitive capacity

Automatic behaviour

- Immediate perceptual benefit
- Future not represented
- Fast
- Minimal cognitive processing

A public health approach to changing dietary behaviours

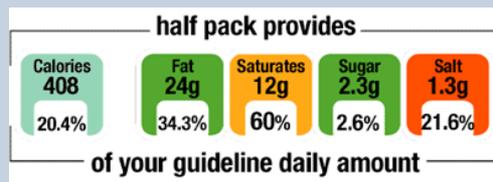
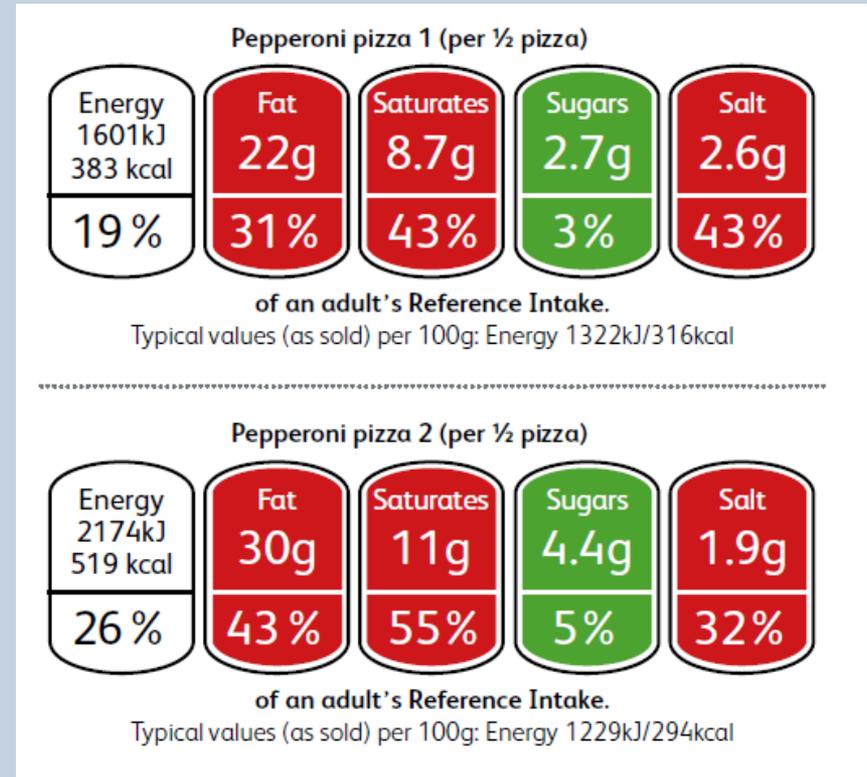
Creating a healthier environment
e.g. controls on marketing, access and availability



Making healthier choices easier
e.g. campaigns, labelling

Providing healthier options e.g.
reformulation, portion control

Signposting healthier choices through labelling



Reformulation is an important strategy to reduce fat, saturated fat, sugar and salt



50% reduction in SFA



25% reduction in salt



30% less sugar



40% reduction in fat

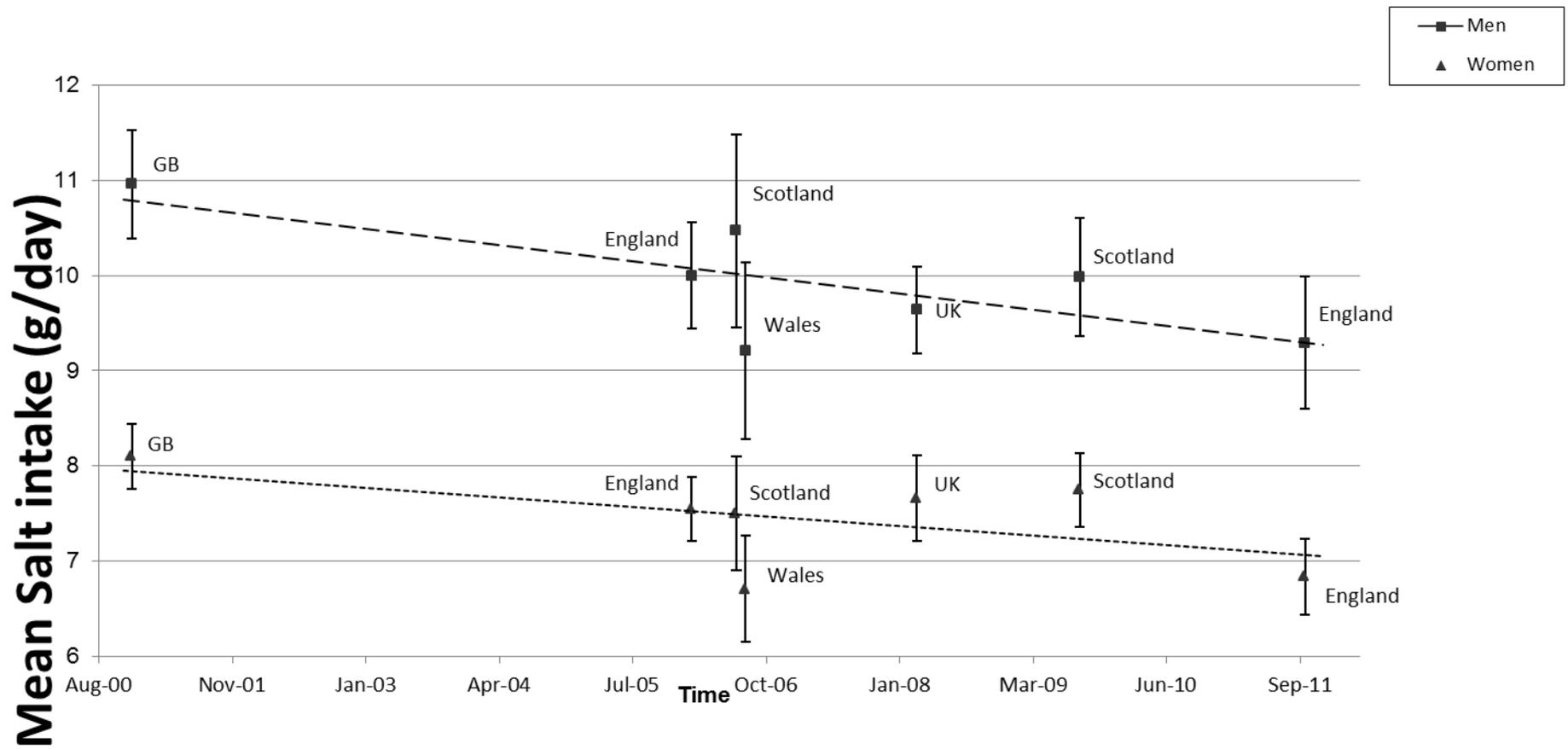


50% decrease in salt



35% decrease in salt

Reformulation has helped reduce salt intake in UK by 15% in a decade



^a The mean and 95% confidence limits for each point are as calculated according to the protocol in place at the time. Different methods of assessment of completeness of 24 hour urine collections may contribute slightly (1- 3%) to the decrease from 2006 to 2011. These differences fall within the 95% confidence limits for each point. The slope of the trend is not substantially affected by these differences.

Reductions in portion sizes to cut calories



Need to build public acceptability for some interventions

Household brands slash size of goods in 'hidden price hikes'

Household brands are slashing the size of their everyday goods while at the same time increasing their prices, a Which? report has found.

Twix chocolate bars have shrunk by almost 14 per cent from 58 grams to 50 grams Photo: ALAMY

By Richard Alleyne

6:00AM GMT 21 Mar 2013

The Telegraph

Why the food police want to shrink your custard creams

MINISTERS were warned to keep their hands off our custard creams last night after plans to make biscuits and cakes smaller were leaked.

EXPRESS
CRUSADING FOR A FAIRER BRITAIN



Can taxes help change dietary habits?

Taxing unhealthy food and drinks to improve health

An increasing number of countries are introducing taxes on unhealthy food and drinks, but will they improve health? **Oliver Mytton, Dushy Clarke, and Mike Rayner** examine the evidence

Oliver T Mytton *academic clinical fellow*, Dushy Clarke *researcher*, Mike Rayner *director*

British Heart Foundation Health Promotion Research Group, Department of Public Health, University of Oxford, Oxford OX3 7LF, UK

The potential impact on obesity of a 10% tax on sugar-sweetened beverages in Ireland, an effect assessment modelling study

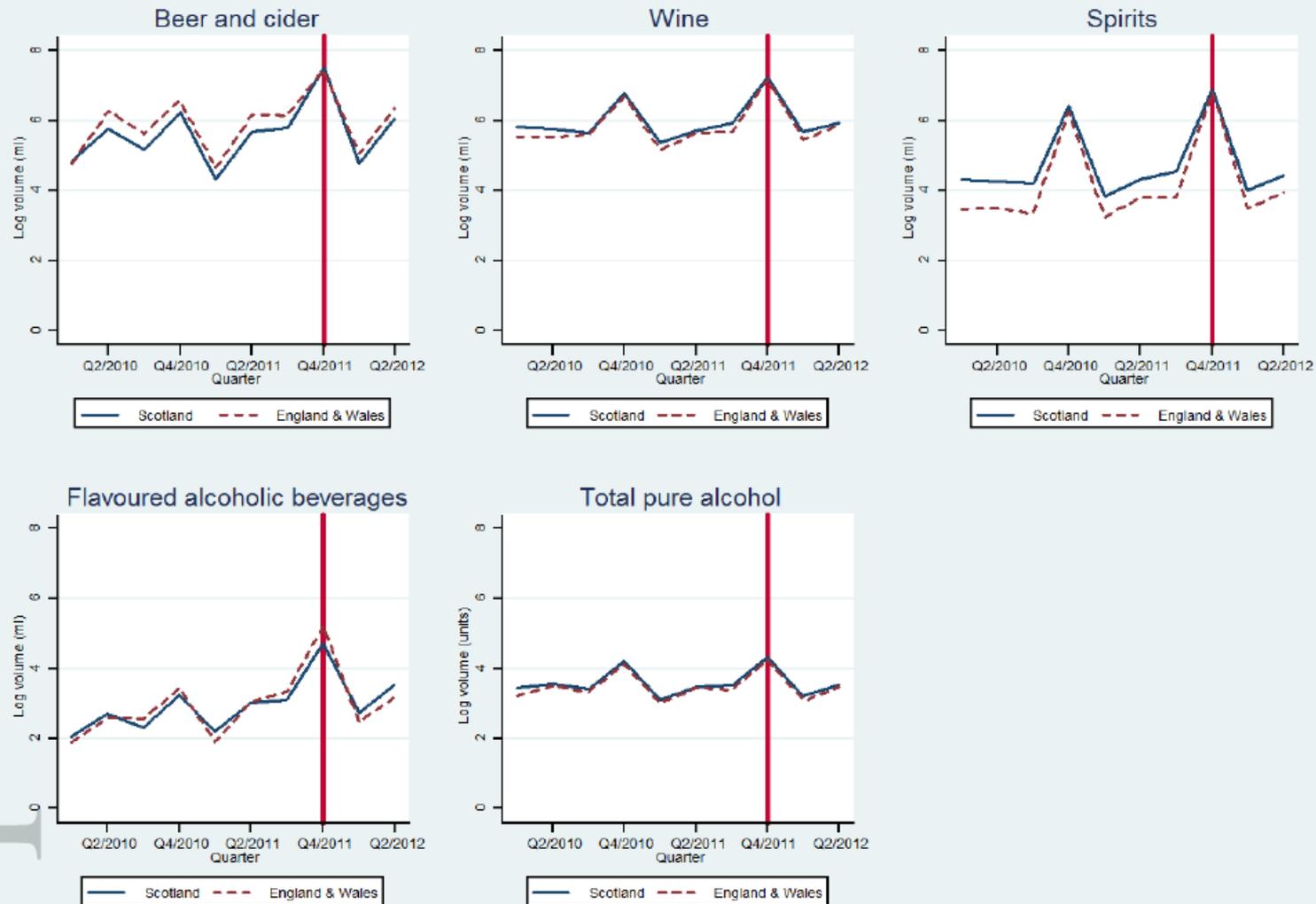
Adam DM Briggs^{1†}, Oliver T Mytton^{1,2†}, David Madden³, Donal O'Shea⁴, Mike Rayner^{1*} and Peter Scarborough¹

Overall and income specific effect on prevalence of overweight and obesity of 20% sugar sweetened drink tax in UK: econometric and comparative risk assessment modelling study

 OPEN ACCESS

Adam D M Briggs *academic clinical fellow*¹, Oliver T Mytton *academic clinical fellow*^{1,2}, Ariane Kehlbacher *lecturer*³, Richard Tiffin *director*³, Mike Rayner *director*¹, Peter Scarborough *senior researcher*¹

Figure 1. Trends in alcohol purchasing in Scotland, England and Wales 2010-2012



Impact on alcohol purchasing of a ban on multi-buy promotions: a quasi-experimental evaluation comparing Scotland with England and Wales
R Nukamura et al, 2013. *Addiction*.
doi/10.1111/add.12419

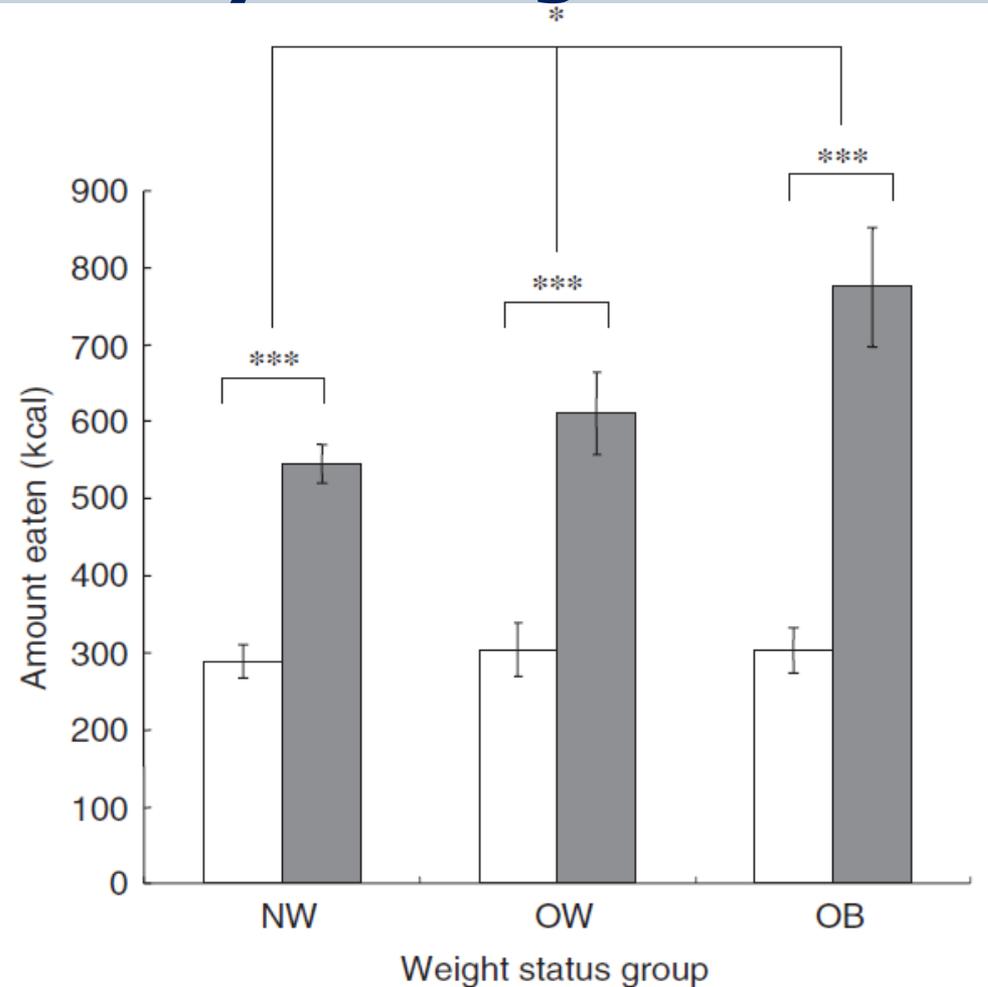
Uplift in sales with end of aisle promotions

	Beer		Wine		Carbonates	
	Aisle end	Within aisle	Aisle end	Within aisle	Aisle end	Within aisle
Proportion of trolleys passing the display	33.8	22.5	27.6	21.1	51.1	30.2
No. of produce in each display location	2.85	12.91	7.62	10.89	2.09	7.38
No. of locations	8.38	20.92	10.08	29.31	8.34	20.77
Increase in sales (%)*	23.2		33.6		51.7	
Price promotion equivalent (%)	-4		-7		-22	

*Adj for no. of locations, price, proportion of week on promotion

Food marketing to children increases energy intake, especially among the obese

- ◆ Exposure to food advertisements increased subsequent energy intake in all children
- ◆ The increase was greater in obese children (155%) and the overweight children (101%) than the NW children (89%).



Developing a strategy to reduce meat consumption: 5 Rs

- **Reduce:** decrease portion sizes of carcass meat or meat content of ready meals
- **Replace:** more vegetarian meals including meat substitutes
- **Reformulate:** increase the veg:meat ratio in composite meals
- **Rebrand:** promote or refresh products that are already vegetarian or where meat is a flavouring/garnish
- **Respect:** focus on the role of meat as a 'Sunday-special' or celebration food; promoting 'nose to tail' eating

