Interdisciplinary journeys in public health

Alan Dangour
Nutrition Group
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Early career – RCTs in older people

• Fish oil to prevent cognitive decline in the UK
  – NO EFFECT

• Vitamin B12 to improve nerve function in the UK
  – NO EFFECT

• Multivitamins to reduce pneumonia incidence in Chile
  – NO EFFECT
Early career....

‘All this fish oil and I can’t even remember my own name’
The health benefits of tackling climate change

An Executive Summary for The Lancet Series

“If properly chosen, action to combat climate change can, of itself, lead to improvements in health. The news is not all bad.”
Conceptual framework

Greenhouse gases → Climate change

CH₄
N₂O
CO₂

Food system activities before, during and after livestock production

Health Outcomes:
Cardiovascular disease
Colorectal and other cancers

High intake of food from animal sources
Eating less meat ‘will cut climate change and save lives’

By Kate Devlin
Medical Correspondent

PEOPLE should eat less meat to reduce climate change and save thousands of lives a year, a government-funded report has said.

It was released as Andy Burnham, the Health Secretary, gave warning that global warming poses a ‘real and present danger’ to the health of millions.

The report suggests that tens of thousands of lives a year could be saved in Britain at the same time as cutting the amount of carbon released into the atmosphere.

The number of animals farmed for food should be cut by almost a third, experts recommended.

The move would significantly cut emissions and – as a result of improving eating habits – save around 18,000 lives a year from heart disease alone, they estimate.

Alan Dangour, one of the authors of the report and a senior lecturer at the London School of School of Hygiene and Tropical Medicine, said that a dramatic change could be made without having to give up meat. “We are not saying become vegetarian, we are just saying cut back on the amount of meat and meat products you eat,” he said.

“Even cutting back by a third would still mean that the average adult was still eating one meat-based meal every day.”

The reduction would allow the agricultural sector to meet its share of targets to cut carbon emissions by 50 per cent by 2030, he said.

Meat production is estimated to be to blame for around 18 per cent of the gases thought to cause man-made global warming.

Cutting down production of chicken, beef and pork could save even more lives, scientists said, if deaths from other diseases, such as cancer and diabetes, are included.

The report follows a similar call earlier this year from Lord Stern, one of the world’s leading experts on climate change, who said that people should give up meat to save the planet.

It is released less than a fortnight before international leaders are due to meet in Copenhagen for talks on climate change.

The report also estimates that another 5,000 deaths from lung problems and other conditions could be prevented every year by fully insulating homes across the country.

Switching to walking instead of driving for many journeys could also cut deaths from heart disease by up to 4,200 cases a year as well as reduce emissions.

The move could also save around 200 lives a year each from dementia and breast cancer. The report, produced by the Lancet medical journal, also calls for a reduction in other greenhouse gases as well as carbon dioxide, such as ozone, which has been shown to cause lung problems. Reducing carbon emissions would also cut air pollution across the world, reducing deaths from heart problems, lung conditions and other acute illnesses, especially in large parts of the developing world which still suffer from high levels of pollution.

Mr Burnham said: “Climate change can seem a distant, impersonal threat – in fact the associated costs to health are a very real and present danger.”

“An ambitious and fair deal in Copenhagen will not only have major benefits in terms of reducing the climate change-related spread of infectious diseases and risks to food supply, but will also limit temperature increases to no more than 2C.”

“Reducing our carbon footprint and adopting a meat-reduction diet provides a relatively simple strategy to do just that.”
Eatwell Guide

Use the Eatwell Guide to help you get a balance of healthier and more sustainable food. It shows how much of what you eat overall should come from each food group.

Choose wholegrain or higher fibre versions with less added fat, salt, and sugar

Potatoes, bread, rice, pasta and other starchy carbohydrates

Whole grain cereal

Cous Cous

Bagels

Whole wheat pasta

Rice

Spaghetti

Soya drink

Soya milk

Semi-skimmed milk

Lean mince

Tuna

Beans lower salt and sugar

Lentils

Plain nuts

Chick peas

Eat at least 5 portions of a variety of fruit and vegetables every day

Fruit and vegetables

Free from added fat, salt, and sugars

Eat less often and in small amounts

Eat more beans and pulses, 2 portions of sustainably sourced fish per week, one of which is oily. Eat less red and processed meat

Beans, pulses, fish, eggs, meat and other proteins

Dairy and alternatives

Choose unsaturated oils and use in small amounts

Choose lower fat and lower sugar options

Per day 2000 kcal 2500 kcal = ALL FOOD + ALL DRINKS

Source: Public Health England in association with the Welsh Government, Food Standards Scotland and the Food Standards Agency in Northern Ireland

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Emissions from UK diets

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Greenhouse gas emissions (kg CO₂ equivalent per kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef</td>
<td>35</td>
</tr>
<tr>
<td>Lamb</td>
<td>30</td>
</tr>
<tr>
<td>White meat</td>
<td>5</td>
</tr>
<tr>
<td>Cheese</td>
<td>20</td>
</tr>
<tr>
<td>Bread</td>
<td>5</td>
</tr>
<tr>
<td>Pasta and pizza</td>
<td>5</td>
</tr>
<tr>
<td>Vegetables</td>
<td>5</td>
</tr>
<tr>
<td>Beans and pulses</td>
<td>5</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>5</td>
</tr>
<tr>
<td>Fruit</td>
<td>5</td>
</tr>
<tr>
<td>Butter</td>
<td>30</td>
</tr>
<tr>
<td>Cooking oil</td>
<td>5</td>
</tr>
<tr>
<td>Chocolate and sweets</td>
<td>5</td>
</tr>
<tr>
<td>Crisps and savoury snacks</td>
<td>5</td>
</tr>
<tr>
<td>Soft drinks</td>
<td>5</td>
</tr>
</tbody>
</table>

(Green et al 2015; Milner et al 2015)
Healthy and low emission UK diets

- Red meat
- White meat
- Dairy and Eggs
- Sweet and sugary foods
- Soft drinks

Current diet
Healthy diet
60% emissions reduction
Healthy and low emission UK diets

- Current diet
- Healthy diet
- 60% emissions reduction

Comparison of diets for different food groups:
- Cereals
- Vegetables
- Beans and pulses
- Fruit
- Nuts and seeds

60% emissions reduction indicates a significant reduction in emissions compared to the current diet for these food groups.
Food security challenges for India

1. Population Growth
2. Dietary change
3. Groundwater depletion
4. Climate change
Environmental footprints of diets

- GHG emissions
- Blue water footprints

(Green et al 2015; Vetter et al 2017; Joy et al 2017; Harris et al 2017; Green et al Submitted)
Changes to diets to meet reduced water availability

...co-benefits for health (CVD)...

(Milner et al 2017)
Diets and health in the future

(Global Burden of Disease data, 2013)
Impact of environmental change

Systematic reviews:

- Vegetables and fruit
- Yield and quality
- 185 relevant studies
- 45 countries
Effects on vegetable yields

(Scheelbeek et al in prep)
Socio-economic and societal factors

Environmental change

Interventions and policies

Food system activities

Agriculture

Input production

Consumption

Waste management
Journey conclusions so far...

- Reach and interest in public health increasing
- Silos are braking down (academic, funding, journal)
- Building wider networks and research partnerships
- Learning new questions and methods

- I wake up remembering who I am!