Plant-rich diets

Healthier for people and the planet

CPD

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Background
There are strong links between the rise in unhealthy diets and non-communicable diseases, which are a major cause of morbidity and mortality in the community and have a strong impact on the health system. The current food system encourages poor food choices and fails to help many people follow the principles set out in the Australian Dietary Guidelines. There is also good evidence that healthier diets are likely to be more environmentally sustainable than the typical Australian diet.

Objective
New diets are constantly appearing, and it can be a confusing area for doctors and patients to make sense of their benefit. This paper aims to provide evidence that GPs can use to support healthier diets for their patients.

Discussion
General practitioners can provide education and motivation for patients to change their dietary patterns. This will involve choosing more healthy plant foods, with fewer highly processed products and less red meat, as currently recommended in the Australian Dietary Guidelines. Such dietary choices provide proven co-benefits for health and the environment.

The dominant diets that the western world has been producing and eating for the past 50 years are no longer nutritionally optimal, are a major contributor to climate change, and are accelerating erosion of natural biodiversity.[1]

Our current obesogenic environment and the systems that encourage this are major factors in the global rise of overweight and obesity, tripling in the past 50 years to around 2.5 billion adults worldwide.[2] In 2018, 67% of Australian adults (60% of women and 75% of men) were overweight or obese.[3]

In 2021, globally, at least 828 million people were affected by hunger, with another 2.3 billion experiencing moderate or severe food insecurity.[4] Food insecurity also exists in Australia: 4% of Australians reported running out of food in the past 12 months and not being able to purchase more.[5] The cost of a healthy, more equitable and sustainable diet has been shown to be lower than the current typical diet, in which 60% of the budget is spent on discretionary choices, although costs remain significantly higher in rural and remote areas.[6]

Ultra-processed foods (UPFs) are readily available, convenient, heavily advertised, have long shelf lives, are often cheap or on 'special' and have high salt, sugar and fat content, which provides taste appeal.[7] The consumption of UPFs has risen globally, with evidence of a correlation between current high consumption and increased rates of obesity and non-communicable diseases.[8] In the average Australian's diet, 42% of daily energy intake is from UPFs, most of which are energy rich and nutrient poor.[8] Concomitantly, fewer than 10% of Australians consume sufficient fruit and vegetables to meet dietary guidelines.[9,10]

This sets a challenge to find sustainable diets and food systems that promote and protect health. General practitioners (GPs) are a trusted source of advice to help patients deal with overwhelming and sometimes seemingly contradictory dietary information. This article examines the evidence for healthy and sustainable plant-rich diets, also called planetary diets, which have both health and environmental co-benefits. In such diets, energy intake from plant sources is increased, whereas that from animal sources is reduced, and fewer processed foods are eaten.

Environmental impacts of agriculture and food production

Agriculture produces one-quarter of the world's greenhouse gas emissions,[11] with the total food system from 'paddock to plate' contributing over one-third of total emissions.[12] Agriculture uses significant natural resources, consuming 69% of

all fresh water, 34% of land surface and approximately 50% of productive land.[13] It is also responsible for 73% of deforestation,[13] with approximately 44% of Australian forests and woodlands cleared since European settlement.[14]

Agriculture is the major driver of biodiversity loss.[15] Humans, and especially their domesticated livestock, consume the majority of biomass on the planet[16] and, together, make up 96% of all mammals.[17] Agrochemical pollutants, invasive species and climate change are additional problems.[13] Feed-lot beef and dairy herds can also cause high eutrophication as a result of nitrate and phosphate run-off.

Ruminant livestock (cattle, sheep and goats) have a particularly high environmental footprint, using two-thirds of global agricultural land and contributing approximately half the emissions related to agriculture.[18] Data from the US shows that beef production requires 28-fold more land, 11-fold more irrigation water and sixfold more nitrogen than dairy, poultry, pork and egg production.[18] Meat consumption is highest in high-income countries and increases with rising affluence in developing countries.[13,19] Australia is one of the world's top meat-consuming countries, averaging 89.6 kg per person annually in 2019.[19]

Beef raised on natural grassland has a lower environmental footprint than feed-lot beef. Meat from non-ruminants, which do not produce methane (eg kangaroos, rabbits, pigs and various types of poultry), has an even lower environmental footprint.

Health impacts of food choices

A high consumption of red meat, particularly processed meat, has been linked to adverse health outcomes, as discussed in the following paragraphs. It is acknowledged that the highest level of evidence for these outcomes is predominantly from cohort and case-control studies.

The increased risk of colorectal cancer with particular food groups is relevant: a comprehensive systematic review[20] found risk increased 12% for each 100-g/day increase in intake of red and processed meat. Wholegrains were associated with the largest decrease in risk (–17% for each 90-g/day increase in consumption), with the intake of dairy products also being protective (–13% decrease in risk for every 400-g/day increase in consumption). The 11 studies on vegetable intake included in this systematic review did not contain sufficient intake and showed only a non-significant decrease in risk.

Another recent systematic review of prospective observational studies found a 17% increased relative risk of type 2 diabetes for each 100 g/day of red meat consumed on a regular basis.[21] In contrast, plant-based diets that emphasise legumes, wholegrains, vegetables, fruits, nuts and seeds offer value for both the prevention and treatment of type 2 diabetes.[22]

There is evidence suggesting the benefits of vegetarian dietary patterns both for the prevention and in the treatment of heart failure and cerebrovascular disease.[23] Diets rich in high-quality plant foods are also associated with a lower risk of developing coronary artery disease.[24]

Planetary, plant-rich and sustainable diets

The Australian dietary guidelines support the approach that a healthy diet involves eating a wide variety of primarily minimally processed, healthy, plant-derived foods, including fruits, vegetables, legumes, unsaturated plant oils and wholegrains. Guidelines also recommend limiting refined sugars, UPFs, processed meats and sugar-sweetened beverages.[25]

Sustainable, or planetary, diets build on these recommendations. The detrimental environmental impacts of current food systems provide an imperative to promote diets that are healthy and have a low environmental impact. The Food and Agriculture Organization of the United Nations published guiding principles of sustainable dietary guidelines in 2019.[26]

In 2019, the EAT-Lancet Commission developed a plan to provide healthy food to a growing global population via a sustainable food system designed to minimise damage to the planet. To achieve this will require substantial dietary shifts, including more than doubling the consumption of healthy foods such as fruits, vegetables, legumes and nuts, and a greater than 50% reduction in the global consumption of red meat and other less healthy foods. Appropriate diets will differ across countries to be socioculturally acceptable and economically accessible for all.[27]

A New Zealand-based randomised control trial showed whole-food plant-based diets are also effective for weight loss when delivered as a comprehensive package of lifestyle change, with 12-month mean reduction of body mass index (BMI) of 4.2 kg/m^2 in, and 11–12 kg weight loss compared with a control group.[28]

Comparison with other diets

Mediterranean diets are relatively plant rich, with protein coming mainly from legumes, nuts, cheese, fish, poultry and rabbit, as well as smaller portions of red meat. Vegetables, wholegrains and rice feature, along with generous amounts of olive oil, making such diets high in dietary fibre, with a low glycaemic index. An impressive body of evidence supports the benefits of Mediterranean diets in reducing the risk of heart disease, metabolic syndrome, many types of cancer, anxiety and depression and cognitive decline, in addition to other benefits.[29] A trial of a Mediterranean diet, based on a higher proportion of plant-based foods and lower meat content, further supported the beneficial cardiometabolic effects of this diet.[30]

In a systematic review of the protective effects of different diets in the prevention of heart failure in patients with cardiovascular disease, the Mediterranean and Dietary approaches to stop hypertension (DASH) diets showed a protective effect on heart failure.[31] The review found only one trial involving a low carbohydrate Paleolithic diet, which did not find any significant benefits on this outcome.[31]

Supporting patients to adopt sustainable and healthy diets

Behaviour change of any sort is never easy, but the co-benefits of health and

environmental sustainability may be extra motivation for some of our patients to adopt planetary diet principles. Adopting plant-rich diets does not mean animal foods need to be excluded. Vegetarian, and especially vegan, diets need more planning and may need supervision to ensure adequate nutritional intake. Table 1 lists some strategies that can be used to support gradual and sustainable behaviour change.

Additional ways to support more sustainable food systems include choosing foods that are in season. This can increase their nutritional content, save money and reduce 'food miles', but may have less impact than the choice of food type.

Other strategies include growing some vegetables at home (even a few salad greens in pots), minimising food waste, composting leftovers and avoiding non-recyclable packaging. The Australian Government has set a goal to halve food waste by 2030 and has published The National Food Waste Strategy, Roadmap and the National Waste Policy Action Plan.[32] Many local governments are introducing programs to help reduce food waste.

Planetary approaches supporting the availability and affordability of healthy foods, especially regarding alternatives to UPFs, also need system-level support from all levels of government. Once the agenda is set by qualified people without a conflict of interest, as occurred with EAT-Lancet Commission, the additional support of the food and packaging industry sectors will be essential.

Conclusion

Finding solutions to problems with the current food system is in all our interests. Public awareness is growing throughout the world, with increasing interest in sustainable and regenerative farming, and more plant-based meals. Food producers and retailers are starting to respond to the increasing demand for sustainable products, and the need to comply with national carbon reduction policies.

GPs are already encouraged to assess patients' dietary habits as part of chronic disease prevention (smoking, nutrition, alcohol, physical activity [SNAP] guidelines). We recommend that sustainable, planetary diets be an additional part of this education and support. The co-benefit of shifting to foods that are better for health and the environment, as illustrated in Figure 1, could be an additional motivation for behaviour change.[33]

Key points

- The typical Western diet is linked with obesity and many non-communicable diseases.
- Many current food choices are environmentally unsustainable.

Table 1. Practical tips for shifting to more sustainable everyday meals

1. Change meat type • Eat pasture-fed rather than feed-lot beef • Choose meat with a lower environmental footprint (eg kangaroo meat) • Choose sustainable fish and white meat
2. Reduce the portion size of meat • Put more healthy plant-based food and less meat on the plate
3. Start with one or two meat-free days each week (eg meat-free Mondays)
4. Explore different recipes and cooking styles to make plant-based diets attractive
5. Eat local food, in season
6. Reduce food waste

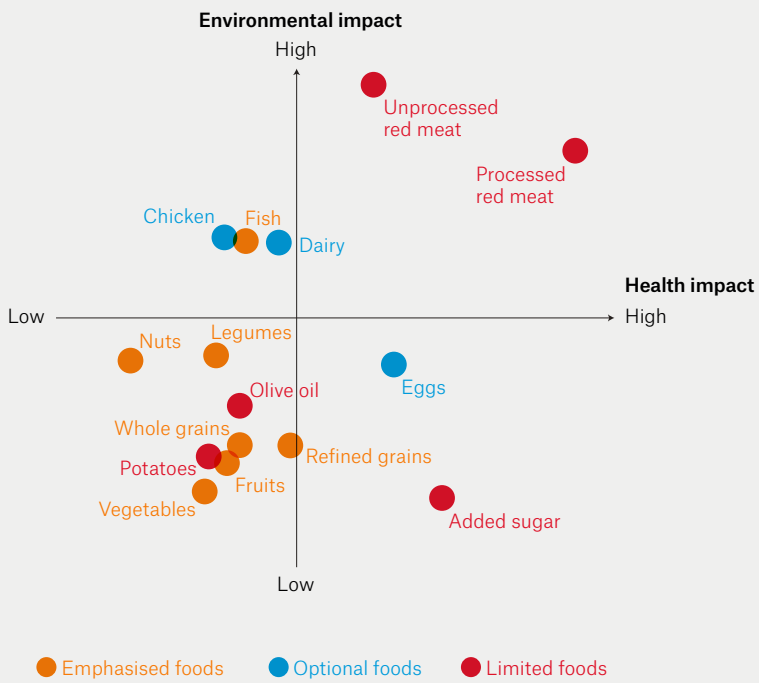

Figure 1. Healthier and more sustainable food choices based on the health and environmental impacts of various foods.

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- Improving the average Australian's diet means fewer UPFs, more modest portions of meat and increased consumption of healthy plant foods.
- Healthy plant foods should include all of these food types: vegetables, fruits, legumes, wholegrains, nuts and seeds.
- GPs can help patients change to a healthier, more sustainable diet.

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