

# A plant-based diet — good for us and for the planet

Feeding and greening the world requires a fresh look at plant foods

**T**he current world food system is inequitable and unsustainable, and is creating huge and costly health problems.<sup>1</sup> Of the seven billion people in the world, 1.5 billion are overweight or obese<sup>2</sup> while almost a billion go to bed hungry each night.<sup>3</sup> The poor are overrepresented in both groups.

Climate change will add pressure to food production, especially if the surging populations in developing countries aspire to a Western-style diet with its high animal content. The modern Western diet also plays a major role in the increasing incidence of non-communicable diseases, which are currently responsible for 63% of deaths throughout the world.<sup>4</sup>

Dietary choices influence not only health, but also greenhouse gas (GHG) emissions, with meals of similar energy content differing in their emissions by a factor of between two and nine.<sup>5</sup> Regional differences need to be considered, but, in general, plant foods are associated with lower GHG emissions than is meat, especially from ruminant animals.<sup>5</sup> This has led climate change experts to recommend a reduction in meat consumption, especially from methane-producing cattle and sheep.<sup>6</sup> The recommendation to reduce meat consumption in the human diet dovetails with dietary guidelines for increased consumption of vegetables, legumes, fruits, nuts and wholegrain products, and with our knowledge about Mediterranean dietary patterns, whose health benefits are well documented.<sup>7</sup>

A “Meatless Mondays” movement began in 2003, and this is now promoted by many groups in Europe, Japan, the United States, Britain, Canada, Israel and Australia. In 2009, the Belgian city of Ghent was the first to officially adopt weekly vegetarian days. San Francisco followed with meat-free Mondays (dubbed Vegetarian Day) and a major food service provider in the US now offers meatless meals to its 10 million customers each Monday.<sup>8</sup> Johns Hopkins Bloomberg School of Public Health embraced the concept to improve personal health and reduce the ecological footprint of food choices. They now provide information and recipes to encourage people to begin each week with healthy, environmentally friendly, meat-free alternatives.<sup>9</sup>

The English language has even responded with new terms for those who wish to reduce their meat consumption without going all the way to vegetarianism. These include “flexitarians”, who occasionally add fish or meat to their vegetarian choices, and “vegivores” who describe their meals in terms of the plant foods, adding animal protein almost as a condiment.

From a sustainability viewpoint, there is widespread support for a reduction in meat consumption.<sup>7,10</sup> A



minority of people follow a vegetarian diet, and even fewer espouse the principles of a totally vegan diet. However, discussion of the adequacy and potential problems of diets with no meat may also be relevant to the increasing numbers of people who are aiming to eat less meat. As issues of future food security and sustainability force their way to prominence, these will also need attention.

How healthy are diets that are partially or totally vegetarian? Can they meet nutritional needs? Which aspects need special attention? The articles in this supplement investigate these questions and provide evidence-based answers on the healthfulness and adequacy of vegetarian and vegan diets. Most usefully, they also highlight areas requiring special attention.

Addressing perceptions of likely problems with meat-free diets is particularly useful. Fears that a diet without meat may mean a lack of protein can be put to rest. Concern about adequate intakes of iron and zinc are

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important, but need to be balanced with the risks of a high meat intake, and specifically with too much haem iron. The World Cancer Research Fund now considers the evidence convincing that a high intake of red meat causes colorectal cancer.<sup>11</sup> One mechanism that has been proposed, and confirmed in ileostomy studies,<sup>12</sup> is that haem iron facilitates the formation of carcinogenic N-nitroso compounds.

The body's ability to alter its absorption of iron, zinc and other minerals in the context of various diets has not been well addressed in the past. Previous recommendations have also distorted the situation by using absorption studies related only to a single meal.<sup>13</sup>

Valid concerns and solutions are important for vitamin B<sub>12</sub> and, possibly, also for long-chain omega-3 fatty acids. Their inclusion in this supplement may stimulate new ideas for innovation within the food industry for food production.

Nutrition is a complex science and much remains to be elucidated. Dietary patterns may be more important than specific foods,<sup>13</sup> and plant foods contain hundreds of protective factors. The positive aspects of a diet featuring more plant foods may be more important than any adverse effects of meat. It is worth noting, however, that healthy Mediterranean and Asian dietary patterns feature a wide variety of plant foods, and less meat and highly processed foods and drinks than Western diets.<sup>14</sup> They also offer pleasure for the palate, and it is pleasing that each article in this supplement includes suggestions for foods and eating patterns that not only provide the nutrient in question, but also emphasise the diversity of plant-food options.

Not everyone needs to or wants to become vegetarian, but reducing our dependence on meat is a good recipe for our own health and also that of our planet. Diets

dominated by plant foods are almost certainly the way of the future.

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