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The need for eco-vegetarian diets



Christian Rémésy
Anthony Fardet
Institut National de la Recherche Agronomique (INRA)
Clermont-Ferrand, France
Email: anthony.fardet@clermont.inra.fr

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Plants come first



Traditional diets from different parts of the world look and taste very different, but many have an important common quality. They are based on foods of plant origin. Animal foods are used sparingly

It is surprising that in the early twenty-first century, a clear strategy of how best to eat for the health of humans and for the planet has not been really defined, or at least not exactly enough. But good guides are traditional dietary patterns that have proven nutritionally and environmentally healthy and sound, such as the Mediterranean or many Asian diets.

These cuisines, very different in cultural and culinary aspects, have in common the characteristic of being relatively low in animal and industrially-processed dietary energy. We therefore propose the promotion of dietary patterns that include no more than 15 per cent of dietary energy from animal sources. This percentage is about the same as that of lacto-ovo vegetarian diets that include small amounts of milk, eggs, and perhaps some fish. We also propose that the main plant part of the diet should be as natural as possible (such as fruits and vegetables) or include foods that have undergone relatively minimal transformations such as pasta, wholegrain cereal flakes (such as in muesli), wholemeal bread, and cold-pressed oils.

But the Western-type dietary pattern, which is now tending to spread all over the world, is characterised by energy-dense foods of animal origin and an abundance of food products low in nutrients, and in 'empty calories'. The fact that humans will benefit by adopting largely vegetarian diets, for their nourishment and that of the planet, has not been sufficiently understood by populations. The important thing is not to exclude animal products, but to use them to complement foods of plant origin. A variety of vegetarian diets are healthy when they are mostly made up from plant foods and products of good quality and appropriately processed.

Contrary to popular belief, many early human food cultures were plant-based (1). History shows that rising population living standards so far have resulted in an increase in the consumption of animal products (2,3). In Western countries, this has



Another characteristic of traditional eating habits is commensality – the sharing of meals by families and friends, and often, as here, preparation of many dishes, mostly made from foods of plant origin

now become very high. For example, nearly one-third of the dietary energy consumed in France is of animal origin (4). Many people seem sceptical about vegetarianism. (Meaning, not eating meat – red meat, poultry, seafood and the flesh of any other animal – a stricter version of which is also avoidance of by-products of animal slaughter). But the respective share of animal and plant products in the human diet is now of paramount importance, to ensure adequate food availability for a fast-growing global population, to optimise the relationship between diet and health, and to reduce the ecological impact of agriculture and livestock (5,6).

Eating habits therefore have many social and ecological consequences. It is surprising that this issue, although now commonly debated among scientists, environmentalists and campaigners, remains virtually absent from formal debates on public policy, especially in the high-income countries of the global North.

Variety is vital

Plant-based foods are very well suited to cover nutritional needs. Only plant products, especially those that are high in slowly absorbed starch, can satisfy the human need for high quantities of glucose, for use by the whole body and in particular the big human brain. Sufficient consumption of complex carbohydrates from natural foods or minimally processed products ensures blood sugar regulation. Conversely, the damage done by high-protein diets is well attested. The ability to make glucose from animal protein amino acids does exist in the omnivore human, but is well developed only in strict carnivore species. Human physiology is not adapted to work well with a great deal of proteins and only small amounts of slowly absorbed carbohydrates.



Traditional plant-based cuisines from all over the world also typically show a rich variety of colours, flavours and textures, from many types of food, made even more attractive by beautiful presentation

In addition to providing healthy types of carbohydrate, varied plant-based diets are more than adequate in protein and essential fatty acids. Populations whose diets are centred on animal foods consume an unnecessary amount of protein – perhaps around 90 grams a day, whereas 50-60 grams is fully adequate. It is still sometimes said that animal foods supply complete protein whereas plant foods do not. This is not true, as long as grains (cereals) are balanced with legumes (pulses), as they normally are in traditional plant-based dietary patterns all over the world. Lack of a complete range of essential amino acids is a problem only when plant-based diets are monotonous and based on grains such as wheat, rice, corn or millet.

This is not to argue against foods of animal foods altogether. Because these are commonly high in fats as well as in protein, from the point of view of human health (7) as well as environmental impact (2) they are always best consumed sparingly.

Plant foods have other commonly underestimated virtues. Whole foods of plant origin are high in dietary fibre, which nourishes the populations of beneficial and commensal bacterial species that protect gut health (8). Vegetables and fruits are high in very many nutrients such as vitamins, minerals and trace elements, and also in many bioactive compounds now known or estimated to promote health and protect against disease. For these and other reasons, average people, households and communities in high-income countries in the global North will be well advised to halve their consumption of dietary energy from foods of animal origin.

Another benefit is that the production of meat and animal foods is very resource-intensive. The less animal food that is consumed, the more land is released for the production of plant foods. According to a recent French prospective survey, a halving of the amount of animal food produced and consumes would release about half of agricultural land, which could be devoted to the production of plant foods. This could even make possible the ending of intensive industrial agriculture, with all

its prodigal use of resources, and its pollution of the environment (9). Those who are concerned about the ability of low-chemical input and 'organic' agriculture to feed the world, may not realise that most food waste is the result of excessive consumption of animal products in high-income countries and wealthy parts of lower-income countries. A relatively modest reduction of 20-25 per cent of dietary energy from meat and animal products would at a population level offset reductions of yields from low-input agriculture.

Further, reducing production of cereals and soybeans for consumption by livestock would release more land to produce food for human consumption. It could also reduce the amount of land used to produce food, and correspondingly reduce the use of water and emissions of greenhouse gases (10). Ideally, the change of dietary patterns in high-income countries and settings to becoming plant-based, would have the effect of ending the industrial production of animals by the currently horrible intensive methods of animal abuse (11).

Eco-vegetarian

There are different types and degrees of vegetarian diets. As mentioned, the more moderate forms exclude meat, but include milk, eggs and dairy products, and may allow fish as well. Therefore, we suggest that the type of plant-based dietary patterns recommended here, that nourish humans and also the environment, are termed 'eco-vegetarian'. The 'eco-vegetarian' concept can also be used to refer to the dietary patterns of our human and hominid ancestors, when these were based mainly on foods that were gathered, supplemented with some hunted meat.

Traditional Mediterranean (12) and Asian diets that use only small amounts of meat and animal products and that are known to be healthy can also be identified as eco-vegetarian. Such dietary patterns remain common in many parts of the world. They should be recognised, celebrated and protected, including by official and powerful agencies such as the UN Food and Agriculture Organization, the European Food Safety Authority, and a range of relevant national government departments. To qualify as eco-vegetarian, dietary patterns should as stated above, include only up to 15 per cent of dietary energy in the form of foods and products of animal origin, and should be based on plant foods that have retained their original complexity and nutritional value.

Traditional dietary patterns can be good models. But the concept and practice of eco-vegetarianism needs to work well in modern especially urban settings, whose populations are surrounded in supermarkets and many other outlets by ultra-processed food and drink products, of both animal and plant origin, of very low nutritional quality.

Secure food systems

Human health and nourishment is linked with that of the environment. For example, omnivorous diets that include a lot of animal products including livestock meat produces about 5.1 grams of CO_2 equivalent per kilocalorie, whereas traditional Mediterranean diets that include fish, or are more strictly vegetarian, produce in a range of 3.9 down to 1.4 grams per kilocalorie (2). The new dietary transition we are advocating focuses on two key points: to reduce consumption and therefore production of animal foods, and also of ultra-processed products, that increase the risk of obesity and chronic non-communicable diseases (13).

The message here for all who are in any way concerned with food and nutrition policy, including of course qualified nutritionists, is to advocate and work towards eco-vegetarian food systems and supplies and dietary patterns. The message is also to abandon the 'nutritionism' (14) or reductionist (15) dogmas, that serve the mass producers and manufacturers of food products that are bad for human health and bad for the environment. The introduction and growth of eco-vegetarian dietary patterns, with all this means, will entail development of sustainable food systems, enable effective resistance against the excesses of food industrialisation, and improve human health.

Policies to reduce CO_2 emissions and use of energy resources now need to include the goal of halving production and consumption of animal products in the decades to come. In countries where this is very high (say, over 30 per cent of dietary energy) this will involve shifts from intensive production of animals, to low-chemical input agriculture and horticulture, with all the benefits to animal welfare as well as human health. In countries where animal production and consumption is currently low, a top limit of 15 per cent of dietary energy needs to be effectively recommended.

We believe that there are no other rational solutions, given the need to ensure food security throughout the world, to prevent and control obesity and chronic non-communicable diseases, and to improve human health and well-being and that of the environment and biosphere. Strong forces will oppose what we recommend here, including those of corporate interests and ingrained dietary habits. But the transition is surely logical and beneficial, and must eventually prevail.

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