



Plant-based Health Justice

PLANT-BASED CATERING ON CAMPUS

A DECISION-MAKER'S GUIDE

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**PLANT-BASED
UNIVERSITIES**

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Welcome to this comprehensive guide addressing some of the frequently asked questions about transitioning to a 100% plant-based catering on university campuses. As more and more people become aware of the environmental, ethical, and health impacts of animal-based products, students at universities across the UK are asking their institutions to transition to 100% plant-based catering as a way to align with their sustainability goals and meet the evolving demands of a growing population that values environmentally conscious practices and healthy food choices. This document aims to provide decision-makers at universities with answers to some of the most common nutritional questions that arise when considering such a transition.

Are there any health conditions that require people to consume animal products?

There is no requirement for anyone to consume animal products for medical reasons, as per the available evidence

A 100% plant-based diet without supplement is unhealthy and puts students at risk of nutrient deficiency.

The only nutrient that a 100% plant-based diet does not provide is vitamin B12.

However, vitamin B12 is produced by certain bacteria and microorganisms in the soil and not by animals.

Animal products do contain B12 because pasture-based and free-roaming animals can obtain B12 while grazing and licking the soil, and factory-farmed animals are given B12 supplements in their feeds.

Most dairy products are fortified with minerals and vitamins including B12. As a result, anybody who does not consume dairy - whether because of lactose intolerance or other reasons - and those whose diet is not meat heavy may be at risk of B12 deficiency.

It is also worth noting that vitamin B12 absorption can be inhibited by certain drugs such as ranitidine, omeprazole, metformin and oral contraceptives and individuals taking those drugs may also need to resort to B12 supplements.

Other nutrients that are often discussed as nutrients of concern on a 100% plant-based diets are iodine, omega-3 fatty acids, vitamin D, iron and calcium. However, it is possible to get almost all of those nutrients except vitamin D on a healthy, balanced plant-based diet.

Vitamin D is a common problem with 60% of the UK population having low levels. Sunlight is the main source of vitamin D, therefore low levels or deficiencies cannot be attributed to a plant-based diet. In fact, the NHS recommends all UK adults to supplement with vitamin D in autumn and winter months.

The primary source of **iodine** for most people in the UK is through consumption of dairy and dairy products. It is worth noting, however, that cows do not produce iodine. Instead, iodine is used to clean the udders and the milking equipments, which leads to iodine contamination in dairy products. Those following a plant-based diet can obtain sufficient iodine through their diet by consuming iodine-fortified foods and seaweed (e.g. dulse, nori, and wakame). However, since the iodine content of seaweed can vary depending on several factors, such as the type of seaweed, where it was grown, and how it was processed, some people may choose to take an iodine supplement.

A plant-based diet is unnatural because it is unhealthy without the use of supplements.

Adding micronutrients, i.e. vitamins and minerals, to foods to increase their nutritional value and prevent common deficiencies has been a standard practice for decades. Food fortification emerged in the 1920s with introduction of iodised salt to prevent goitre. Many staple foods lose nutrients during processing and adding nutrients to those foods is a cost-effective public health

strategy which has reduced the prevalence of micronutrient deficiencies.

In the UK, the fortification of white flour with calcium was first introduced in the 1940s. Under the Bread and Flour Regulations 1988 all white flour (except wholemeal flour) are required to be fortified with calcium, iron and the B vitamins thiamin and niacin. Since 2021 the flour fortification with folic acid has been mandatory. Breakfast cereals are routinely fortified with vitamins and minerals as are many brands of orange juice.

While dietary supplements may be necessary for some individuals to meet their nutritional needs, requiring supplementation does not necessarily make a diet unnatural.

Removing red meat increases the risk of iron deficiency among students, especially female students.

Iron deficiency is one of the most common nutritional deficiencies worldwide, and its prevalence is higher among women globally.

While animal-based sources of iron, e.g. red meat, offal or poultry, are more bioavailable and absorbed better, they also contain 40-45% heme iron. Since the body cannot regulate the absorption of heme iron, excessive intake can increase risk for serious health concerns such as coronary heart disease and colon cancer.

In contrast, non-heme iron from plant-based sources is better regulated by the body, meaning less iron is absorbed when iron stores are adequate - this self-regulating mechanism helps to reduce the risk of iron-related health issues.

It is worth noting that the primary source of iron in the UK are fortified cereals and breads, not red meat. Additionally, the majority of people consume a large amount of tea and coffee, which are known to decrease iron absorption. Available evidence suggests that advising people to consume an iron-fortified breakfast cereal while avoiding tea and coffee with meals can enhance iron intake and lower the risk of low iron levels.

Isn't dairy required for good health?

Contrary to common belief dairy consumption is not necessarily required for optimal health. Dairy products don't provide any nutrients that you cannot obtain from many other plant foods. For example, calcium can be found in leafy greens such as kale and spinach, as well as in fortified plant-based milks. Vitamin D can be obtained through sun exposure or supplementation, and other nutrients such as protein and healthy fats can be found in a variety of plant-based sources.

When considering the biological and nutritional needs of the human body, it becomes clear that milk and dairy products are not necessary beyond infancy.

Despite this fact, many individuals continue to consume dairy products simply because of cultural and dietary habits, rather than a true physiological requirement for these products.

Consuming dairy products not only lacks essential nutrients but also exposes individuals to potentially harmful components, including high levels of saturated fats, hormones like bovine growth factors, and residues of antibiotics and pesticides, which have been linked to numerous health risks.

High intake of saturated fats - which are found in high amounts in many dairy products - has been linked to an increased risk of cardiovascular disease and other health problems.

Bovine growth factors are naturally occurring hormones found in cow's milk that are used to promote growth and milk production. Some studies have suggested that these hormones may be linked to increased risk of certain types of cancer, particularly breast, prostate, and colorectal cancer.

Residues of antibiotics and pesticides may be present in dairy products. Antibiotics are often used in dairy farming to treat and prevent bacterial infections in cows, and to promote growth and milk production. While the levels of antibiotics (and pesticides) in dairy products are generally very low, there is some concern that chronic exposure to these low levels can lead to the development of antibiotic resistance in humans.



In summary, dairy products are not essential for good health and can be replaced with plant-based alternatives that offer similar nutritional benefits without the potential concerns.

A plant-based diet is high in carbohydrates which students suffering from diabetes need to avoid.

There is a common misconception that people with diabetes should completely avoid carbohydrates. However, this is not entirely true as the impact of carbohydrates on blood sugar levels depends on the type of carbohydrates consumed.

Complex carbohydrates found in whole grains, fruits, and vegetables are digested slowly, which helps to stabilise blood sugar levels and prevent sudden spikes and crashes. In contrast, simple carbohydrates, such as sugar, refined grains, and processed foods, are quickly digested and can cause rapid increases in blood sugar levels.

It is important to note that a diet high in refined carbohydrates can contribute to insulin resistance, but there is no evidence to suggest that complex carbohydrates contribute to insulin resistance.

In fact, research suggests that diets high in complex carbohydrates, particularly those from whole plant foods, are associated with a reduced risk of developing insulin resistance and type 2 diabetes.

Several studies have demonstrated that a plant-based diet can be beneficial for people with diabetes. For example, randomised controlled trials conducted in 2009, and 2006 found that the plant-based diet group showed significant improvements in HbA1c (a measure of blood sugar control), body weight, and lipid profiles compared to the standard diabetes diet group.

In summary, students with diabetes should not avoid carbohydrates altogether. Rather, they should choose complex carbohydrates from whole plant foods to gain the full health benefits of a plant-based diet, including improved blood sugar control and reduced risk of developing insulin resistance and type 2 diabetes.



How can students ensure an adequate protein intake on a plant-based diet?

One common misconception is that animal proteins are superior to plant foods in terms of protein content, leading some to believe that it's difficult to meet the recommended daily protein intake on a plant-based diet. However, this is a myth.

The average adult only needs 0.75g of protein per kg bodyweight per day, which translates to about 45g/day and 56g/day for adults weighing 60kg and 75kg, respectively. Studies such as the EPIC Oxford and Adventist Health Study show that all dietary groups, including vegetarians and vegans, consume more protein than the recommended daily intake.

It should also be mentioned that the protein recommendations are based on mixed diets containing both plant and animal protein, and not exclusively animal-based diets. In the UK, animal proteins contribute to roughly 50% of the daily protein intake. Removing animal products from your diet doesn't mean a complete overhaul of your diet. Legumes, grains, nuts, and seeds are excellent plant-based sources of protein and can easily replace animal protein in meals.

Another concern regarding plant-based diets is the quality of protein. Protein quality is determined by the composition of essential amino acids, the building blocks of proteins.

There are 9 amino acids that are essential and need to be obtained from the diet. Animal proteins are considered "complete" because they contain all the essential amino acids in the same pattern required by humans. Plant proteins, though containing all the essential amino acids, tend to be low in at least one essential amino acid. However, by including a variety of plant proteins in your daily diet, you can obtain all essential amino acids.



Is removing fish from the diet healthy if the NHS recommends at least 2 portions of fish per week?

The NHS recommends the consumption of fish due to its high content of omega-3 fatty acids, which are essential nutrients that we need to obtain in our diet.

Omega-3 fatty acids are healthy fats with anti-inflammatory properties that support the normal function of all the cells in the body, particularly in the heart, brain and immune system.

There are three types of omega-3: ALA, EPA, and DHA.

ALA is found in plants but needs to be converted to EPA and DHA in the body. EPA and DHA are found in algae, which are consumed by fish, and not produced by the fish themselves.

There are several plant-based sources of ALA, including flaxseeds, chia seeds, walnuts, soybean, and plant oils, which can be easily incorporated into the diet. For instance, consuming 1-2 tablespoons of flaxseeds or 3-4 walnuts per day can help meet the recommended daily intake of ALA.

However, it is important to note that ALA must be converted to EPA and DHA in order for the body to effectively utilise it. While the low conversion rate of ALA to EPA and DHA in plant-based diets is a concern, it is worth noting that there is currently insufficient data to suggest that individuals following a plant-based diet need to supplement with algal omega-3 when removing fish from their diet.

Plant-based meat alternatives are heavily processed and unhealthy.

It is important to note that not all plant-based meat alternatives are inherently unhealthy or heavily processed. These alternatives can be made from a variety of ingredients, such as soy, pea protein, wheat protein, or legumes. Although these ingredients are often processed to create a texture that mimics meat, not all processing is unhealthy.

In fact, many plant-based meat alternatives are made with minimally processed whole food ingredients, such as lentils, beans, and whole grains that are higher in fibre and other important nutrients. For instance, lentil or black bean burgers can be made by simply mashing cooked legumes with spices and other flavourings, forming them into patties, and grilling or baking them.

Having said that, some plant-based meat alternatives may be heavily processed and contain added oils, sugars, and other additives. However, this is not unique to plant-based meat alternatives, as many processed foods - including meat-based products - can contain added ingredients that are not particularly healthy. The aim should be to choose products that are made from whole food ingredients and are minimally processed.

Is a plant-based diet accessible for everyone? Will students with physiological disorders surrounding food struggle to find foods to eat?

There is a wide range of physiological disorders related to food that impacts a person's relationship with food and their ability to eat a balanced and varied diet. Each of these disorders should be addressed separately.

The most common examples include gastrointestinal disorders such as irritable bowel syndrome (IBS), Crohn's disease, and ulcerative colitis; food allergies or intolerances; eating disorder such as anorexia nervosa and bulimia nervosa; avoidant/restrictive food intake disorder (ARFID).

Irritable bowel syndrome (IBS)

is a common gastrointestinal disorder affecting approximately 1 in 5 people in the UK at some point in their life. The impact of IBS on a person's life and eating habits can vary greatly depending on their symptoms which can be mild to severe.

A plant-based diet may improve the symptoms of IBS because it is lower in fat than animal products, which some people find more difficult to digest. Plant foods can also improve gut health by promoting the growth of beneficial gut bacteria and reducing inflammation due to their high antioxidant content.



Additionally, plant foods are high in fibre while meat, dairy and eggs contain no fibre. Fibre can help regulate bowel movements and reduce IBS symptoms.

In the UK, only about 10% of the population is obtaining enough fibre in their diet. There is a strong evidence that adequate fibre intake is associated with better health and reduced risk of heart disease, diabetes and bowel cancer.

However, some people may experience worsened symptoms when first increasing their fibre intake or consuming high FODMAP foods, a group of carbohydrates that can be difficult to digest.

Therefore, it is essential to choose low FODMAP and low-fibre plant foods and gradually increase fibre intake to reach the recommended daily intake.

Finally, people with IBS should take other steps to improve their symptoms, such as staying hydrated and eating smaller, more frequent meals,- these steps should be followed regardless of the diet the students eat.

Avoidant/restrictive food intake disorder (ARFID)

is a complex eating disorder and mental health condition that can only be diagnosed by a medical or mental health professional. It affects less than 5-10% of population and the prevalence is higher in children and adolescents. The prevalence of ARFID among university students is not well-established. In fact, there have been few studies on ARFID beyond adolescence.

ARFID is characterised by an individual having a low interest in foods, regarding eating as a chore and being sensitive to certain texture and smells. They typically have a narrow range of 5 to 10 safe foods they can eat. They often avoid eating with others including their family as a way to avoid foods they are sensitive to and consider “unsafe”.

Individuals suffering from ARFID need to receive treatment by a multi-disciplinary team of healthcare professionals who can offer counselling, behavioural therapy and dietary advice and prescribe supplements if necessary. It is important for universities to be aware of the condition and to provide appropriate resources to the students including access to mental health services and nutrition counselling.

The condition cannot simply be managed by increasing food options and offering more variety on campus.



Eating disorders

are a complex mental health issue characterised by persistent disturbances in eating patterns, attitudes towards food, and body image. The most common types of eating disorders are anorexia nervosa, bulimia and binge eating disorder. They share some common characteristics such as preoccupation with food and weight, psychological symptoms (e.g. anxiety, low self esteem), social withdrawal (e.g. avoiding to eat in public and with others).

Individuals with eating disorders may become obsessed with food, avoid places that offer food, count calories, have rigid rules when or where to eat.

Since it is a complex issue, it requires a multidisciplinary treatment plan involving different healthcare professionals such as mental health professionals, dietitians and medical doctors. Often the first step for individuals with eating disorders is to identify and change their negative thoughts and behaviours related to food intake, weight and body image.

Some young people suffering from anorexia nervosa may adopt a plant-based diet as a way to mask their condition, however, there is no evidence that adopting a plant-based diet will increase the risk of developing an eating disorder. Some studies suggest that those following a plant-based diet have a healthier attitude towards food and are at lower risk of developing eating disorders.

In summary, there is no evidence that offering a 100% plant-based menu will adversely affect those suffering from eating disorders or hinder their treatment progress.

Crohn's disease & ulcerative colitis

are inflammatory bowel diseases. It is recommended that students suffering from any of these diseases receive advice from a dietitian.

Food allergies and intolerances

See next question!

How can a 100% plant-based diet cater the needs of those with allergies?

It is estimated that 1-2% of adults in the UK suffer from a food allergy. Although food intolerances are more prevalent there is no reliable data on their prevalence since many of the tests can give inaccurate results.

The most common food allergens in the UK are: dairy, peanuts, tree nuts, eggs, fish, shellfish and soy.

The most common food intolerances in the UK are lactose intolerance and gluten intolerance.

4% of the adults in the UK are allergic to dairy products while lactose intolerance is more common, especially among those from Asia, Africa and South America - this means international students are more likely to suffer from lactose intolerance.

It is estimated that 4% of adults are allergic to peanuts. 0.4% of the UK population has a true soy allergy which is more seen in children who eventually grow out of it. Soy allergy is rare in adult.

Although soy beans are commonly considered a widely used plant-based food, there are plenty of plant-based food options without soybeans. In addition, many whole plant foods are naturally nut-free.

Offering a 100% plant-based option on campus is in general safer for people with common allergies and intolerances because the most common allergens are not included in plant-based diets. Also bear in mind that all food outlets take the necessary steps to ensure the safety of and accommodate those with food allergies and intolerances by labelling the menus and offering allergen-free options.

Some cultures consume meat-heavy diets. A vegan diet will not be culturally appropriate.

A common misconception is that a plant-based diet cannot cater for the needs of international students whose traditional cuisine is meat-heavy. This is far from the truth.

Many cultures around the globe are considered meat-heavy as a result of globalisation which has led to the adoption of Western diet and lifestyle in many parts of the world. Since the late 20th century the widespread availability of fast food and processed foods in fast-food chains combined with the influence of Western media and advertising have led to a cultural shift away from traditional diets. This trend has created the impression that many cultures around the world consume a meat-heavy diet.

As it happens, many cultures around the globe are celebrated as “vegan friendly” cuisines. Well-known examples include foods from Ethiopia, South India, Mexican, Chinese and Mediterranean. Many of the traditional regional and national dishes in the Middle East, South America, Africa and East Asia are plant-based and nutritious. With that being said, it is possible to create plant-based alternatives for almost all meat dishes by substituting animal-based ingredients with plant-based alternatives, using herbs and spices to create the same flavour, adding umami flavours - to mention a few.

How will people with texture issues enjoy foods?

To ensure that people with texture issues enjoy plant-based foods, catering staff can utilise various cooking methods that result in different textures. Blending, mashing, and pureeing ingredients can create a smoother texture, while grilling and roasting can result in a crispy exterior and soft interior. Additionally, experimenting with different spices and seasonings can enhance the flavour of plant-based dishes and make them more appealing to individuals with texture preferences. Providing a range of plant-based options with different textures can increase the likelihood of finding options that individuals enjoy.

However, it is important to note that people with texture issues may also encounter difficulties with certain animal-based foods, such as the chewiness of red meat or sliminess of some seafood.

To make the transition to plant-based eating more inclusive for people with sensory issues, universities can provide a variety of plant-based options that cater to different sensory preferences, and offer clear information on ingredients and cooking methods.

Students may be reluctant to try plant-based foods that don't taste nice or taste differently.

It is understandable that students may be hesitant to try new foods, especially if they have had negative experiences with new options in the past. However, it is important to note that there are many delicious and flavourful plant-based options available that can satisfy a wide range of tastes and preferences. In addition, catering staff will be trained on how to prepare appetising plant-based meals. This can include using herbs and spices to add flavour, incorporating umami-rich ingredients like mushrooms and soy sauce, and experimenting with different cooking techniques to create a variety of textures.

By providing tasty plant-based options and ensuring that the catering staff is knowledgeable about preparing tasty plant-based meals, universities can encourage students to try new and healthy food options.



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