



Plant Based Nutrition

**Healthy eating without
animal products**



INTRODUCTION

BACKGROUND

More and more people are choosing to reduce their use of animal products, for a variety of reasons. Some are cutting down on animal fats to reduce risk of heart disease. Others are rejecting the cruelties of factory farming. Still others are trying to live more sustainably by shifting to plant foods, which require less land and water to produce.

Whatever the reason for moving to a more plant based diet, it is important to understand how to use plant foods to promote good health. Making the right choices can reduce risk of heart disease, cancer and depression without restrictive diets, exotic foods or expensive supplements. The key guidelines are summarised below and explained in more detail in later sections of this booklet.

GUIDELINES

Physical activity is vital for health, especially for building and maintaining strong muscles and bones and avoiding bulging waistlines. Try to be active for at least an hour a day, ideally including several different activities.

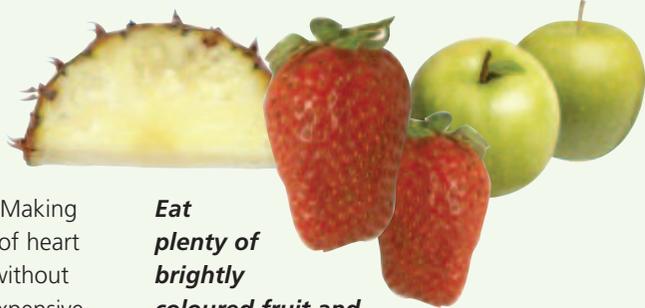
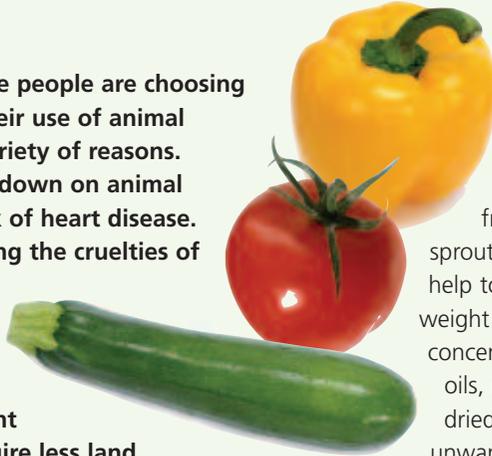
Choose foods that help you to maintain a healthy weight.

High fibre, low calorie density foods such as vegetables, fruits and boiled or sprouted grains and legumes help to avoid unwanted weight **gain**. More concentrated foods such as oils, nuts, avocados and dried fruit can help to avoid unwanted weight **loss**.

Eat plenty of brightly coloured fruit and vegetables, including green leafy vegetables.

Eat a wide variety of whole foods.

Limit use of processed foods, especially those containing large amounts of salt, sugar or white flour. Avoid foods containing hydrogenated fat. Limit deep fried foods.



Get at least three micrograms a day of vitamin B12 from fortified foods or supplements.

Choose your main high fat foods from those containing mostly monounsaturated fat, such as olive oil, rapeseed oil, avocados, cashews, hazelnuts, macadamias and almonds.

Include a good source of omega-3 fats, such as a heaped tablespoon of ground flaxseed or two tablespoons of rapeseed oil per day.

Ensure an adequate iodine intake, e.g. by adding small amounts of kelp to food (10 to 30 grams *per year* or two standard kelp tablets per week).

Get out in the sun without sunblock for at least 15 minutes on most days when the sun is high in the sky. If this is not possible for more than a few months, take 10 to

20 micrograms of vitamin D2 per day.

Get at least 500 mg of calcium per day

from calcium rich foods, fortified foods or supplements.

Limit salt intake by using a low sodium alternative at the table and in cooking.

Use sprouting and bread making to make the minerals in whole grains, beans and lentils more available.

Eat vitamin C rich foods such as cauliflower, peppers, green leafy vegetables, oranges or kiwi fruit with grains, legumes and other seeds to improve mineral absorption.

Anyone eating a high raw diet should include plenty of vegetables and sprouted seeds to improve protein and mineral intake and sufficient high fat foods to maintain a healthy weight.

Choose foods and recipes from around the world to make your meals enjoyable as well as healthy.

Following these recommendations will ensure a healthy plant based diet.

If you choose to take a daily multivitamin to help ensure a good intake of nutrients, make sure it provides:

5 to 10 micrograms of vitamin B12;
10 to 20 micrograms of vitamin D;
100 to 150 micrograms of iodine;
50 to 100 micrograms of selenium.

Half these amounts are appropriate for children under twelve years.

The rest of this booklet explains the reasons behind these recommendations, with simple low-cost ways to improve your health plus answers to common questions about vegetarian and vegan diets.



MAINTAINING A HEALTHY WEIGHT

Healthy weight varies with height and build. Body mass index (weight in kilograms divided twice by height in metres) allows recommendations to be made independently of height.

A BMI above 25 is considered to be overweight and above 30 is considered to be obese. Obesity from middle age reduces life expectancy by almost a decade – comparable with smoking twenty cigarettes a day.

The chart below illustrates how BMI varies with height and weight and highlights the World Health Organisation's recommended range for adults of 18.5 to 25. Below 18.5 is considered underweight.

In developed countries food is easily available and often processed so as to be as appealing and as easy to consume as possible. Soft drinks are a good example: they are as easily consumed as water, but stimulate the taste buds and pack a heavy load of calories. Foods such as sweets, doughnuts, chips and soft drinks allow us to pack in a large number of calories quickly and easily, without filling our stomachs and without allowing time for the hunger signals to die down.

It is not surprising that more and more of us are gaining weight that we don't need and don't want. But we can reverse this trend by modifying our behaviour and diet so that our natural levels of hunger match our needs.

height		metres	1.5	1.55	1.6	1.65	1.7	1.75	1.8	1.85	1.9	undeweight ideal weight overweight
weight	ft and in	lb \ in	4 11	5 1	5 3	5 5	5 7	5 9	5 11	6 1	6 3	
	st and lb	lb \ in	59	61	63	65	67	69	71	73	75	
40	6 4	88	17.7	18.6	19.6	14.6	13.8	13.0	12.3	11.6	11.0	
50	7 12	110	22.2	20.8	19.5	18.3	17.3	16.3	15.4	14.6	13.8	
55	8 9	121	24.4	22.8	21.4	20.2	19.0	17.9	16.9	16.0	15.2	
60	9 6	132	26.6	24.9	23.4	22.0	20.7	19.5	18.5	17.5	16.6	
65	10 3	143	28.8	27.0	25.3	23.8	22.4	21.2	20.0	18.9	18.0	
70	11 0	154	31.1	29.1	27.3	25.7	24.2	22.8	21.6	20.4	19.3	
75	11 11	165	33.3	31.2	29.2	27.5	25.9	24.4	23.1	21.9	20.7	
80	12 8	176	35.5	33.2	31.2	29.3	27.6	26.1	24.6	23.3	22.1	
90	14 2	198	40.0	37.4	35.1	33.0	31.1	29.3	27.7	26.2	24.9	
100	15 10	220	44.4	41.6	39.0	36.7	34.6	32.6	30.8	29.2	27.7	

Not surprisingly, vegans in developed countries are slimmer, with an average BMI 2 units (about 6 kg) below their meat eating counterparts – a significant advantage in the battle of the bulge. This markedly reduces the risk of diabetes and high blood pressure.

Individuals on similar diets may have very different BMIs, so diet needs to be adapted to individual needs.



Physical activity is central to maintaining a healthy weight. This is best built into activities that we need or want to do rather than exercise for its own sake. Aim to be active for at least an hour a day, ideally including several different activities that you enjoy. Walking, running, cycling, swimming and weight training are all good options and variety is the spice of life.

LOSING WEIGHT

If your body mass index is above 25 and you are not exceptionally heavily built,

decrease the calorie density of your food by eating more fruit and vegetables high in water and fibre. Restrict the accessibility of calorie dense foods by limiting the amount you have available. Oranges, apples and similar fruits are good snacks.

Many foods are designed to be “moreish”: once you have some you want more. The best way to limit consumption of such foods is by choice when out shopping rather than by willpower at home.

In terms of diet, the key to avoiding unwanted weight gain is choosing foods that are low in calories and high in fibre – consistent with the characteristics of the wild plant foods that form the core of our natural diet.



GAINING WEIGHT

Some people naturally tend to be underweight, and being underweight is also unhealthy. Underweight individuals should consume more calorie dense foods, make sure that food is always readily accessible when they feel hungry, and set aside enough time for eating. Nuts, bananas and dried fruit are good snacks. Physical activity should not be avoided, however, as it has many health benefits and builds muscle and bone.

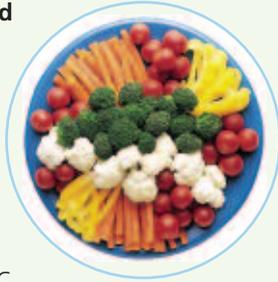
SUMMARY

Keep active, make whole plant foods the core of your diet, and adjust the calorie density of your diet to suit your constitution.

THE HEALING RAINBOW

Everyone should eat a wide variety of brightly coloured fruit and vegetables.

These are excellent sources of folate, vitamin C, carotenoids, and many other protective substances that contribute to good health. Many studies show reduced death rates as fruit and vegetable intake increases. Fruit and vegetables are also associated with reduced risk of cancer, cardiovascular disease, dementia and blindness and make for an attractive and stimulating diet.



Yet most people do not eat enough of these foods to maximise their chances of good health into old age: at least a pound (450 grams) a day from a variety of sources. Leafy greens, broccoli, peppers, tomatoes, oranges, carrots, sweet potatoes, beetroot, cherries, plums and berries are all among the many common foods with much to commend them. Such foods are at the core of our natural diet and should be returned to the heart of our modern diet.

Unfortunately, the less colourful vegetables and fruits such as potatoes and bananas, while they are useful sources of potassium

and other nutrients, are not associated with all the benefits of their more brightly coloured cousins. They therefore do not count towards the recommended intake: chips (French fries), or even baked potatoes, are no substitute for oranges and greens.

Vitamin pills and nutrient extracts are a very poor substitute for the natural cocktail of nutrients provided by brightly coloured fruit and vegetables.

Green leafy vegetables and broccoli have special characteristics, in particular high levels of vitamin K which may improve bone health.



Carrots are an excellent, tasty and inexpensive source of vitamin A in the form of beta carotene, which is better absorbed if the carrots are cooked or juiced. Pre-formed vitamin A (retinol) from animal products or supplements may increase the risk of osteoporosis.

Make brightly coloured fruits and vegetables a major part of your diet. Eat at least two pounds of green leafy vegetables or broccoli and a pound of carrots each week. Make your meals colourful and attractive and enjoy the benefits for your health.

PUTTING IT INTO PRACTICE

BREAKFASTS

Breakfasts are conventionally centred on either grains or fruit. To promote good health, choose unrefined whole grains, accompanied by a vitamin C rich food such as oranges or peppers to improve mineral absorption.

Suggestions

A cup of oats and a heaped tablespoon of ground flaxseed cooked with water and served with fortified soya milk and a chopped orange.

Fruit smoothie with two bananas, one apple, one pear, one orange, a cup of blueberries and a heaped tablespoon of ground flaxseed.

Wholemeal toast with scrambled tofu, fried mushrooms and chopped red pepper.

Muesli (oats and other rolled grains, hazelnuts, ground flaxseed, raisins, chopped apple, orange and banana) with soya yogurt.

A variety of fresh fruit.



If you use soya milk or yogurt, look for varieties with added vitamin B12 and calcium

as this can be a convenient way of boosting your intake. The calcium content of tofu is usually high but can vary (check labels).

Many breakfasts provide a convenient opportunity to include some ground flaxseed and boost intake of omega-3 fatty acids and soluble fibre. Flaxseed needs to be ground as it has a strong outer shell which resists digestion if not broken.

Whole grains are richer in protein than fruit, while fruit is richer in potassium and vitamin C. Some people prefer to eat just fruit for breakfast and this can be a very effective way of boosting fruit intake. Those following this pattern should include some protein rich foods later in the day.

Even processed whole grain foods can be high in salt. It is better to buy lower salt varieties or make your own.

PUTTING IT INTO PRACTICE

SNACKS

Well chosen snacks can be a useful and convenient way of increasing the variety of whole plant foods in your diet.

All fruits are good sources of potassium, and brightly coloured fruits are generally rich in antioxidants. Many nuts and seeds are excellent sources of healthy fats. A handful of nuts (about 30 grams) per day may increase life expectancy by two years.

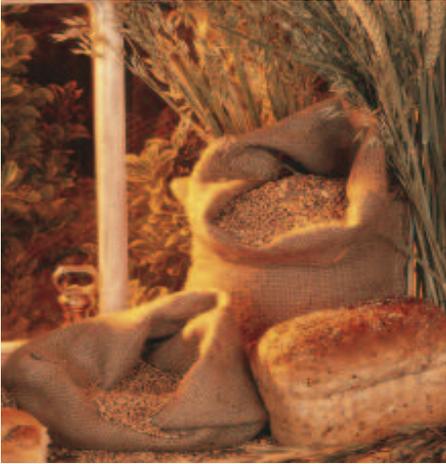


Suggestions

Fresh fruit: apples, apricots, avocados, bananas, blackberries, blackcurrants, blueberries, clementines, cloudberries, cranberries, figs, grapes, kiwis, mandarins, mangoes, oranges, pears, raspberries, sharon fruit, strawberries, tangerines, tomatoes.

Dried fruit: apricots, berries, currants, dates, figs, raisins, sultanas.

Nuts and seeds: almonds, cashews, hazelnuts, macadamias, peanuts, pumpkin seeds, walnuts.



LUNCHES

Traditional Western lunches often include bread as the main source of energy. Wholemeal bread is vastly superior to white bread as a source of nutrients.

Most commercial breads contain about 500 mg sodium per 100 grams (2 mg per kcal) making it a high sodium food. Lower salt varieties are preferable, particularly for anyone who is overweight or has a family history of high blood pressure or stroke.

Making your own bread is easy with a bread making machine and you have complete control over the quality of the bread.

Replacing about 10% of the flour with ground flaxseed makes bread a good source of omega-3 fats. Including a tablespoon or two of cider or wine vinegar will improve both shelf life and digestibility. Low sodium salt can reduce the sodium content by two thirds.

Suggestions

Sandwiches: Nut butters, bean or lentil pâtés, humous and guacamole are nutritious and tasty alternatives to margarine. Vegetable stews or sauces left over from a previous meal make convenient alternative fillings.

Salads that include avocados, beans, nuts, rice or potatoes can make a substantial meal. An oil and vinegar dressing makes a good accompaniment.

Vegetable soups such as minestrone, carrot and coriander, leek and potato or lentil and onion can make a satisfying and nutritious lunch, especially if served with wholemeal bread.

Substantial salads or soups provide a good alternative to the more traditional sandwich.

Try using olive or rapeseed oil as an alternative to margarine.



PUTTING IT INTO PRACTICE

MAIN MEALS

Dinner is traditionally the largest meal of the day and may include several courses. As conventional main courses often centre on animal products, producing a main dish entirely from plant foods may at first seem puzzling and unfamiliar.



Meat and cheese substitutes are widely available, including soya "mince", veggieburgers, fishless fingers and "cheating ham". These foods can be useful in making the transition, but try to use mainly whole grains and fresh vegetables for most of your main meals.

Suggestions

Starters: Soup, melon, avocado vinaigrette, humous and other Mediterranean side dishes.

Main courses: Pasta, curries and dhals, chili non carne with soya mince, shepherdless pie with lentils, the list is endless.

Desserts: Fresh fruit, home made apple pie, tofu "cheesecake" or one of the wide variety of high quality non-dairy ice creams now available. Again, keep the processed items for special occasions and concentrate on freshly prepared whole foods on a daily basis.



VITAMIN B12 AND FOLATE: PARTNERS IN HEALTH

Most people will have heard that folate (folic acid) reduces the risk of birth defects. Folate is also the main focus of attempts to reduce blood levels of a substance known as homocysteine. High homocysteine is associated with increased risk of birth defects, depression, dementia and death.

Anyone eating a wide range of plant foods, particularly green vegetables, oranges and legumes (beans, peas and lentils) will get a good supply of folate. Vegetarians and vegans have a higher average intake of this vitamin than meat eaters.

However, healthfully low levels of homocysteine require good intakes of vitamin B12 as well as folate. In meat eaters folate is normally the weakest link in the chain, but in vegans and vegetarians B12 is more usually the limiting nutrient.

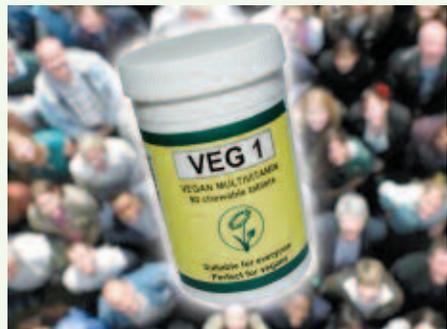
All land animals get their vitamin B12 from bacteria. Most mammals obtain it first hand through bacterial contamination of food or, in the case of multi-stomached animals such as cows, from bacteria in their stomachs. Other mammals get their B12 second hand from eating insects, either deliberately or as a natural accompaniment of plant foods, or from eating other animals.

In our modern overcrowded and sanitised world people do not usually get enough vitamin B12 from bacterial and insect

contamination to avoid elevated homocysteine. In addition, older people often lose the ability to absorb B12 from meat. Fortunately, vitamin B12 can be easily obtained from particular fermentation processes and used in fortified foods or supplements.

The amount of B12 we need depends how frequently we consume it. The human body is very efficient at absorbing the sort of small amounts we would have got from natural contamination, but much less efficient at absorbing larger amounts.

We can ensure a good intake of vitamin B12 by getting either:
3 micrograms over the course of the day from fortified foods; *or*
10 micrograms once a day from a supplement; *or*
2000 micrograms once a week from a supplement.



Supplements should be chewed thoroughly to promote good absorption.

FATS AND HEALTH

Many people still view all high fat foods as fattening and unhealthy. This is a serious mistake as fats come in many varieties with very different properties.

Weight gain is encouraged by easily consumed foods and drinks providing a lot of calories. Some high fat foods such as doughnuts and chips fall into this category, as do foods with large amounts of free sugars such as most soft drinks.

Other high fat foods such as nuts or salad dressing do not lead to overeating and can be a very useful part of a healthy diet. Sugars which occur as a natural part of whole fruit also cause no problem.

Fats help the absorption of important nutrients. Polyunsaturated fats (both omega-3 and omega-6) are essential for health. Omega-3 intake is often undesirably low in modern diets while omega-6 intake is generally high.

Fish is often suggested as a good source of omega-3, but this is problematic not only for ethical and environmental reasons but due to contamination with poisonous chemicals such as mercury. Plant sources have similar benefits and are to be preferred.

Both polyunsaturated fats and monounsaturated fats promote a good blood cholesterol profile while saturated fats and hydrogenated/trans fats make it worse. Animal products are the main source of saturated fats in Western diets.

Guidelines

Cut back on unhealthy and fattening foods like doughnuts, biscuits, chips, crisps and other deep fried foods. Avoid margarine containing hydrogenated fat. Limit use of saturated fats. The main source of saturated fats in the Western diet is animal fats, but palm oil and coconut oil are also rich in saturated fats.

Make moderate use of healthy sources of fat, particularly nuts (about 30 grams a day). Choosing high fat foods rich in monounsaturates avoids excessive omega-6 intake. For cooking, use oils high in monounsaturates such as olive oil or rapeseed oil.

Include an adequate daily amount of omega-3s such as: one teaspoon of flaxseed oil or one heaped tablespoon (10 grams) of ground flaxseed or two tablespoons of rapeseed oil or one tablespoon of hempseed oil.



PROTECTING YOUR BONES



The foundation of good bone health is plenty of physical activity to stimulate the body to build and maintain strong bones.

Folate, vitamin B12 and vitamin K all help to maintain strong bones. Calcium, protein and phosphorus are the building blocks of bone. Vitamin D boosts absorption of calcium, while pre-formed vitamin A (retinol) blocks this boost. Excessive protein intake may increase losses of calcium from the body. Salt increases calcium loss, but potassium from fruits, vegetables and legumes decreases such losses.

Calcium requirements therefore depend strongly on the rest of the diet, but everyone should consume at least 500 milligrams a day from calcium rich foods or supplements.

Eating a variety of whole plant foods ensures an adequate but not excessive protein intake along with other beneficial nutrients.

Fruit, vegetables and legumes are especially rich in potassium. Salt (sodium) has the opposite effect to potassium, so it can be beneficial to reduce sodium intake.

Maintain an adequate store of vitamin D (see page 14) and get a good intake of vitamin K from at least 100 grams per day of green leafy vegetables or broccoli. Postmenopausal women get special benefit from these foods.

Get your vitamin A from plant carotenoids in brightly coloured fruits and vegetables, not from retinol or supplements.

Food	Milligrams of calcium per 100 grams
Kale or spring greens	150
Broccoli or cabbage	50
Oranges	40
Fortified plant milks	Typically 120
Tofu	Typically 300

WHERE DO YOU

PROTEIN



Many common plant foods, such as oats and potatoes, could meet all our protein needs at any stage of life, even if they were the only food eaten. Beans, lentils and green leafy vegetables provide much more than we need and can compensate for relatively low amounts in fruits and in some grains, particularly rice. Elderly people or slimmers with limited calorie intake should include moderate amounts of beans (including soya products), peas and lentils.

IODINE

Sufficient iodine is important for mental development in babies and for good metabolism throughout life.

Iodine deficiency has been a major problem throughout the world. Levels of iodine in the soil, particularly in areas far from the coast, are often too low to provide adequate levels in plant foods. Adults need to get between 150 and 500 micrograms (mcg) of iodine a day, with about half this being suitable for children.

Excessive iodine intakes can harm some people.

Some countries add iodine to salt while others, including the UK, rely on adding iodine to cattle feed to raise levels of iodine

in dairy products. As dairy products come with unwanted saturated fat, and as salt raises blood pressure, neither is ideal for health.



Seaweeds can be a good source of iodine, though it may be difficult to ensure an adequate but not excessive intake.

A good iodine intake can be ensured by either 15 to 30 grams of kelp (kombu) over the year, taken in small amounts at least once a week, or two kelp tablets a week, each with a declared content of at least 150 micrograms of iodine (actual content is often higher), or a daily supplement containing 100 to 150 micrograms of iodine.

SELENIUM

Selenium plays an important role in many processes in the body and also acts as an antioxidant. Like iodine, the selenium content of plants varies greatly with the level in the soil.

Selenium intakes in the UK are marginal in meat eaters and just slightly lower in vegetarians and vegans.

Like iodine, excessive amounts can be harmful.

GET YOUR...?



Brazil nuts are the richest plant source of selenium - just ten per week provide a suitable amount.

A daily supplement containing 50 to 100 micrograms of selenium would also be suitable.

IRON AND ZINC



Whole plant foods generally provide plenty of iron, though it is important to eat them with vitamin C rich foods such as oranges, peppers, green leafy vegetables, broccoli and cauliflower to boost absorption of the iron.

Whole plants are also rich in zinc. Absorption of both iron and zinc from grains is boosted by making bread. Sprouting grains, beans and lentils also improves mineral availability as well as providing a tasty addition to salads.



VITAMIN D

When the sun is high in the sky (when your shadow is not much longer than you), the action of sunlight on the skin provides plenty of vitamin D and there is no need to get it from food.

For a light skinned person just 15 minutes exposure of hands and face (without sunblock) is sufficient to meet the basic requirement. People with very dark skin may require up to an hour. Longer exposure provides little benefit but increases the risk of sunburn and skin cancer. The most effective way to increase vitamin D production is to expose more skin.

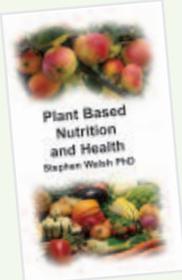
Exposure to sun can be particularly useful in the last few weeks when exposure to high sun is practicable (September/October in the UK). After this we rely on dietary intake and accumulated stores until sun exposure is again sufficient. Good stores can provide adequate vitamin D for at least a few months.

Dietary intake of vitamin D is generally not enough in itself to maintain good levels. If the winter is long or exposure to sun has been limited, a supplement of 10 to 20 micrograms of vitamin D per day can be useful.



The Vegan Society's *VEG 1* supplement is a convenient source of vitamin B12, vitamin D, iodine and selenium at a very low cost: £4.99 for three months adult supply or six months for a child under twelve.

Other nutrients are generally well supplied from a varied intake of unrefined plant foods.



For a detailed appraisal of the evidence for healthy plant centred eating, see *Plant Based Nutrition and Health* by Stephen Walsh (£7.95).



For information on healthy eating for young children see *Raising your Vegan Infant - with Confidence* by Sandra Hood (£9.99)

For these, VEG 1 and a wide range of cookbooks, see www.vegansociety.com/shop.
For a free info pack, call 0845 45 88244 or email info@vegansociety.com



MEMBERSHIP / RENEWAL

- I wish to become a member and support the work of the Vegan Society.
- I wish to renew my membership. Membership No. (if known).....

Name:.....Address:.....
 Postcode:.....Tel:.....email:.....
 Date of Birth: (for security purposes)...../...../.....Occupation:.....

- Please tick this box if you are a dietary Vegan. This entitles you to voting rights in the Society's elections if aged 18+.
- Please treat my membership subscription as Gift Aid. I have paid UK income or capital gains tax equal to the amount the Society reclaims.
- My income is less than £8000 per year and I qualify for the low income discount of 33%.*
- I wish to enrol other members of my household for an additional £7 each.**

--	--	--	--

Please give full names of additional members and specify if dietary vegan and / or under 18. (If more than four additional members please attach separate sheet.)

Membership

Individual	£21
* Less £7 low-income deduction (if applicable)	
** Add £7 per additional household member	
Under 18 years old	
Memo & Articles of Association	£5
Overseas: Europe +£5 / Rest of World +£7	
Donation	
Total:	

How to pay

- Cheque / PO** payable to *The Vegan Society*
- Credit / Debit card** (enter details below)
- Direct Debit** (phone for details)
- Website:** www.vegansociety.com

Payment may be made by credit card, sterling International money order or sterling cheque drawn on a British bank.

- Please debit my Visa / Mastercard / Access / Eurocard / Visa Delta / Connect / Switch / Solo card number

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Name on card:.....Signature:.....
 Today's date...../...../.....Start date:...../...../.....Expiry date...../.....Switch Issue No.:.....

Please return completed form to: