

Healthy Veggie Kids

Every nutrient a
child or teenager
needs and how
to get it

Cut your
kids' risk of
diabetes, cancer,
heart disease
and obesity

A guide for parents showing why vegetarian & vegan diets are health-giving, nourishing and protective for children.

By Juliet Gellatley, founder & director, Viva! & VVF,
nutritional therapist with Laura Scott MSc Nutrition



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Juliet Gellatley BSc, Dip CNM, Dip DM, FNTF, NTCC

Juliet has a degree in zoology and is a qualified nutritional therapist. She founded and directs Viva! and the Vegetarian & Vegan Foundation and is an authority on vegan health and nutrition. She is the mum of twin sons (Jazz and Finn left and on the cover!) and understands the challenges involved in helping kids be healthy eaters! She has given hundreds of public talks on all the vegetarian issues and is author of several books and reports.

World Turned Upside Down!

Just imagine if you read of a diet that produced these headlines:

"Heart disease rates tumble! 40,000 heart patients taken off critical list – misery lifted for relatives and friends. Top heart surgeon says most heart ops avoidable."

"Cancer deaths slump!"

"Millions taken off 'fatty' list."

"Diabetes figures fall for first time."

"Food poisoning cases tumble – records no longer worth maintaining."

What diet could it possibly be? That's easy! The same diet that children should be eating now so they enjoy good health throughout their lives – a well-balanced vegan or vegetarian diet.

If statistics were reversed and most of the population became vegan or vegetarian, these headlines could be accurate. Unbelievable

isn't it? The scientific evidence to justify them is there in abundance and this guide will show just how strong it is.

"People stumble over the truth from time to time, but most pick themselves up and hurry off as if nothing happened."

Sir Winston Churchill

One thing is certain, research showing that a meat-based diet reduces cancer risk or cuts heart disease by up to a half doesn't exist. It does for vegan and vegetarian diets. One by one, the world's leading health advisory bodies have confirmed that avoiding animal products and eating plenty of unrefined plant foods is the way to avoid – or at least greatly reduce – the risk of many diseases, and that includes the growing threat from obesity.



Juliet with Finn (left) and Jazz

“Although human beings eat meat, we are not natural carnivores. No matter how much fat carnivores eat, they do not develop atherosclerosis [clogged up arteries]. When we kill animals to eat them, they end up killing us because their flesh, which contains cholesterol and saturated fat, was never intended for human beings, who are natural herbivores.”

Dr WC Roberts, Editor-in-chief of the American Journal of Cardiology

So what's all this got to do with your littl'uns – those fussy eaters, messy eaters, must-have-chips-with-everything eaters?

Every leading health advisory body is saying the same thing – what you feed your children today will determine their health in the future. And it isn't going to change because the science is now just too overwhelming.

But fear not! By opening this guide, you've already taken the first step in the right direction. It will take you through the science, much of which may be new to you. Why? Because of the power of the vested interests who profit from meat, fish and dairy. If you think we're exaggerating, remember the tobacco industry. The damage that smoking does to human health has been known since the 1950's but it took decades before serious action was taken against it.

What's a Vegetarian or Vegan?

A vegetarian doesn't eat red meat, white meat (poultry such as chicken, duck and turkey), fish or other water life (prawns, lobsters, crabs, shellfish) or slaughterhouse by-products (gelatine, animal fat, lard or animal rennet). Most vegetarians are 'lacto-ovo', which means they don't eat meat or fish but do eat dairy products and eggs. Vegans don't eat any animal products at all and exclude meat, fish, dairy, eggs and honey.

Although excluding things sounds as though we're restricting our choices, in fact it's the opposite. Most meaty diets are based on just three main food types – meat, dairy and wheat. By giving them different names we kid ourselves we're eating a huge variety but we're not. Pork, beef, chicken and lamb are in the same food group; cheese, yoghurt, ice-cream and butter are in the same; and bread, rolls, buns, baps, crispbread, pasta, pies, pasties, cakes and 'baked goods' are in the same. Whichever way you list them, it's still just three food types.

This isn't the case with plant foods – they are not two food groups but several different ones. Diets based

in part or entirely on plant foods include hundreds of vegetables, fruits, nuts, seeds, grains and pulses. Judge vegetarian and vegan diets on what is included not what's excluded and you'll see them through different eyes.



What Foods Should Children Eat?

Animal products promote disease. They are laden with artery-clogging saturated fats, contain too much animal protein, have no fibre, no starchy carbohydrates, little or no vitamins C, E or beta-carotene (the precursor to vitamin A). A lack of these antioxidant vitamins, low fibre, and high levels of saturated fat, animal protein and cholesterol are risk factors for many types of cancer, heart disease, strokes, high blood pressure, diabetes, obesity, gallstones and several other diseases. A meat or cheese-based lunchbox is not the healthiest lunch-box by any stretch of the imagination.

A varied, veggie lunch-box based on fresh fruit and vegetables, beans, grains, nuts and seeds is bursting with all the ingredients known to be health promoting and health protecting. There's loads of protein in vegetables, particularly beans, lentils, pulses, nuts and seeds. Veggie diets also contain essential ('good') fats, fibre, minerals and starchy carbohydrates, antioxidant vitamins and minerals – all that's needed to stay fit and healthy.

What Foods Do Children Eat?

There is an ongoing survey by the UK government's Department of Health and Food Standards Agency, called the National Diet and Nutrition Survey. In 2010 it published the results of the eating habits of young people aged 1.5 to 18 years in Great Britain collected over four days in 2008 and 2009. It probably comes as no surprise to most parents but makes for grim reading nevertheless. Roughly 80 per cent of kids are guzzling away on white bread, savoury snacks, biscuits, chips and chocolate confectionery. Roughly 60-75 per cent had not eaten any citrus fruits or leafy green vegetables during the week of the survey.

The survey finds:

- **Almost one-third of boys and girls overweight or obese.**
- **Only 7% of girls and 22% of boys aged 11-18 meet the 5- a-day target for fruit and veg.**



- **Calories, animal protein, salt and saturated animal fats too high from red and white meats, burgers, kebabs and sausages. In fact, over 90 per cent were eating too much saturated fat. And over half of children consume more than the recommended amount of salt.**
- **Sugar and honey intake too high.**
- **Fibre intake well below a healthy level.**
- **A third of children do not have a daily bowel movement.**
- **Too much vitamin C came from fruit juice and soft drinks and not fresh fruit.**
- **Half of all older girls eat diets grossly deficient in iron.**
- **Average intakes of magnesium and potassium fell below the recommended levels for good health in both boys and girls aged 11-18.**
- **Average intakes of zinc, calcium and iodine levels fell below the recommended levels for good health in girls aged 11-18.**
- **Nuts and seeds are eaten as snacks by far too few children (one in five boys and one in 10 girls).**
- **With 11-18 year old boys more chips and potatoes are eaten than all the veg put together; girls are little better!**
- **Almost 90 per cent of 11-18 year olds eat white bread; only 23 per cent wholemeal.**

As for physical activity – also important in maintaining healthy body weight – 40 per cent of boys and 60 per cent of girls have less than the recommended one hour per day.

It's clear that a large proportion of children are lacking many of the vital nutrients needed to help combat disease. They are eating a diet high in fat, salt and sugar largely due to convenience foods based on processed meat and dairy products. Fresh fruit and vegetables – along with energy-rich starchy foods such as unrefined (wholegrain) cereals, wholegrain breads, wholegrain pasta and brown rice – all take a back seat when it comes to young people's dinner plates, if they appear at all.

Meat and dairy products take centre stage at every meal and, sadly, children are likely to suffer the consequences in terms of poor health and a reduced quality of life.

“The emphasis of our meals needs to be reversed; it is plant foods that should be the focal point of our dinner plate, not meat and dairy products.”

World Cancer Research Fund

As children get older they are more inclined to move towards a vegetarian diet. It seems that some older children are thinking for themselves and starting to choose a healthier diet but the majority of children have a bad diet. The daily pushing of the most unhealthy types of junk foods on web sites, TV and in magazines is making profits for food

manufacturers but is helping to destroy the health of our children.

A recent report from the Cancer Research Campaign paints a similarly worrying picture. One-in-20 of the 2,635 children questioned (aged 11-16) claimed not to have eaten any vegetables in the previous week, with one in 17 not eating any fruit. The recommended intake is 35 portions of fruit and vegetables a week yet

most children had eaten fewer than 13 portions. Vegetarian children nearly always eat more fruit and veg. and a recent study found that vegetarian pre-school children had a better intake of nutrients than meat-eating children. They ate less fat overall, less saturated fat, cholesterol and salt and had higher intakes of 'good' nutrients, such as potassium and the vitamins C, E and beta-carotene.



Left Unprotected

Imagine finding that your child was smoking regularly! You'd be understandably horrified – and why? Because it's now known that smoking is one of the leading causes of cancer deaths in adults – a staggering 30 per



cent. Less known is that even more cancer deaths – about 35 per cent – are caused by bad diet.

The good news is that by changing your and your children's diet to wholefood vegetarian or vegan, you can help protect yourselves from many chronic diseases. Have a look at the table on page 9 for what a teenager should eat each day for energy, zest and good health!

“Vegetarian diets offer a reduced risk for several chronic diseases including obesity, coronary artery disease, hypertension, diabetes and some types of cancer... Vegetarians often have lower morbidity and mortality rates... Vegetarian diets offer disease protection benefits because of their lower saturated fat, cholesterol and animal protein content and often higher concentration of folate, antioxidants such as vitamins C and E, carotinoids and phytochemicals...”

American Dietetic Association

Eat Veggie – Live Longer



Many of the ailments we associate with old age are not a result of getting older but are caused by eating the wrong foods earlier in life. High blood pressure is a good example – often seen as inevitable in old people. Yet in countries where a plant-based diet is the norm, this simply isn't the case.

A massive piece of research looked at the diets of 11,000 people over a period of 13 years and found that vegetarians have a 20 per lower 'premature' death rate than meat-eaters. They live longer! And it shows in lower life assurance premiums!

If we ate only meat and cow's milk we would die – and pretty quickly. If we ate only plant foods, we would be likely to live for a very long time. People on the Japanese island of Okinawa are the longest-lived and healthiest people in the world, according to a 25-year-long study. One of the most important factors is their diet – based on wholegrains, vegetables, fruits and soya products. One of their favourite foods has been dubbed 'immortal pate'. It is vegan and based on tofu (soya bean curd), miso (fermented soya paste), mushrooms and garlic. It tastes as good as the good it does you!

What You Should Eat Each Day to Get Fit and Feel Good!

This chart is for 12 year olds or older. (Younger children require less calories.)

No. of portions	Food	Healthy portion size	To provide
At least 5	Fruit and vegetables		 Folate, Calcium, Iron, Vitamin A, Vitamin C, Fibre
	Fresh fruit Dried fruit Green or root veg Salad veg	1 medium piece the size of a tennis ball 1-1½ tablespoons or 1 golf ball 2-3 tablespoons or ½ tennis ball 80g or 1 large cereal bowl	
3 or 4	Cereals and grains		 Energy, Fibre, B Vitamins, Calcium, Iron, Protein
	eg Cooked brown rice, cous-cous or other grains Breakfast cereal Wholemeal pasta Wholemeal bread	2-3 heaped tablespoons or ½ teacup 25g or 1 regular sized cereal bowl 1 cup (cooked) as side dish or 2 cups as main dish 2 slices	
2 or 3	Pulses, nuts or seeds		 Protein, Energy, Fibre, Calcium, Other Minerals
	Peas, beans and lentils Nuts	½ cup (cooked) 2 tablespoons or a small handful	
Small amounts	Vegetable oil (eg flaxseed, hemp seed or rape seed oil, used cold; virgin olive oil for cooking). Vegetable margarine		Energy, Vitamin E (vegetable oils), Vitamin A & D (fortified margarine) Essential Omega-3 and Omega-6 fats (flaxseed, soya, walnut, hemp)
At least 1	B12 fortified foods (essential if vegan), eg fortified soya milk, fortified breakfast cereal, yeast extract (eg Marmite)		Vitamin B12

Also try to drink one to two litres (at least eight glasses) of water each day. Add a slice of lemon. Tea, esp. herbal teas, also count.

Lethal Double Whammy

Today's younger generation is facing a potentially lethal, diet-related double whammy thanks to a diet centred around animal products.

Today's disease statistics are alarming and although previous generations may have had their own problems, rampant heart disease, obesity and cancer weren't among them. One reason why these diseases have become epidemics is likely to be the diets people ate when they were young – the high bad fat, low vitamin syndrome.

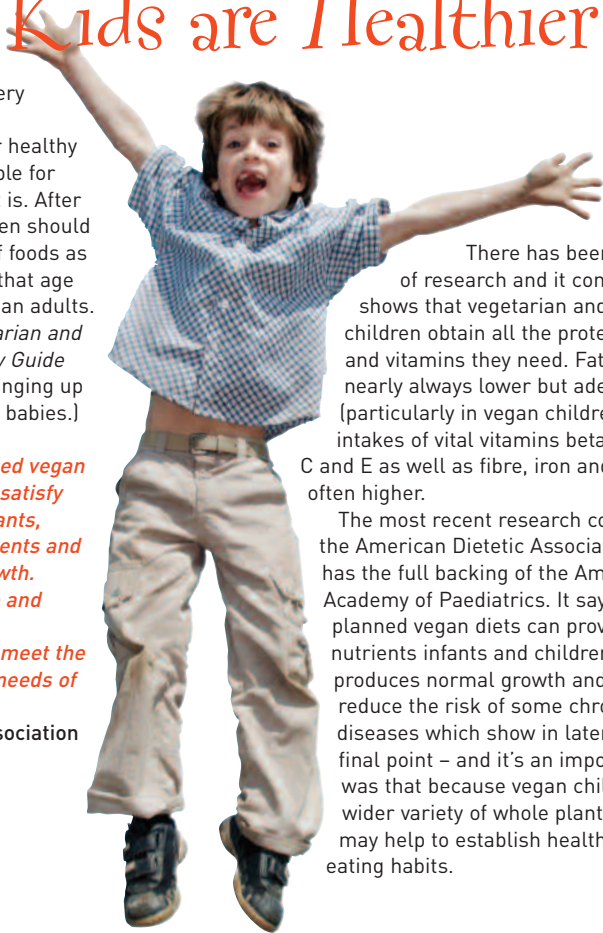
Even more disturbing is the fact that our children's diets are becoming generally worse. Thirty-odd years ago, fatty junk and convenience foods weren't around to the same degree. Now, kids are eating the same amount of meat and dairy their parents did when they were kids PLUS higher quantities of saturated fat, animal protein, sugar and salt. Today's children will almost certainly face even worse health statistics when they grow up than today's adults. And kids don't even have to 'grow up' before they get diseases once only seen in adulthood – obesity and type II diabetes are now afflicting teenagers.

Veggie Kids are Healthier

A vegetarian diet is very close to the official recommendations for healthy eating. But is it suitable for children? Of course it is. After the age of two, children should eat the same kinds of foods as their parents. Below that age they need more fat than adults. (See Viva!/VVF *Vegetarian and Vegan Mother & Baby Guide* for information on bringing up vegetarian and vegan babies.)

“Appropriately planned vegan and vegetarian diets satisfy nutrient needs of infants, children and adolescents and promote normal growth. They are appropriate and healthful choices for adolescents and can meet the nutrient and energy needs of pregnant women.”

American Dietetic Association



There has been a wealth of research and it consistently shows that vegetarian and vegan children obtain all the protein, energy and vitamins they need. Fat intake is nearly always lower but adequate (particularly in vegan children) and intakes of vital vitamins beta-carotene, C and E as well as fibre, iron and folate are often higher.

The most recent research comes from the American Dietetic Association and has the full backing of the American Academy of Paediatrics. It says that well-planned vegan diets can provide all the nutrients infants and children need, produces normal growth and may also reduce the risk of some chronic diseases which show in later life. Their final point – and it's an important one – was that because vegan children eat a wider variety of whole plant foods, it may help to establish healthy, lifelong eating habits.

Every Nutrient a Child Needs and How to Get It

Fruit and Veg for Kids

We all know it's important for children to eat plenty of fruit and veg every day. We know it but very few kids do it!

Why Fruit and Veg?

All of us have 'free radicals' in our bodies and brains that run around like mad hooligans causing inflammation and disease such as heart disease, strokes, arthritis and cancer. Fruit and veg contain 'antioxidants'. These are our health warriors, coming to our rescue. Antioxidants include beta carotene (which makes vitamin A) and other carotenoids, vitamins C and E and flavonoids.

Flavoursome Flavonoids

Flavonoids are chemical compounds that plants produce to protect themselves from bacteria and damage to their cells. Flavonoids reduce inflammation, boost the immune system and aid memory and concentration. They can be helpful in treating attention deficit disorder in children. Over 4,000 flavonoids have been discovered so far and

they are found in abundance in plants, fruits and vegetables.

Crackin' Carotenoids

There are over 500 carotenoids in plants – they are the pigments that make fruit and veg yellow, red, green and orange. The most well known is beta carotene (which makes vitamin A) – but all of them are protective including lycopene (lots in tomatoes and protects against prostate cancer), cryptoxanthin, lutein and zeaxanthin.

As you can see plants contain thousands of natural chemicals that fight disease inside us. They also fight to prevent disease happening in the first place. It's no good just popping a vitamin pill – they contain a fraction of the goodness that we get from eating fruit and veg, nuts, seeds and peas, bean and lentils. All these plant foods protect our health.

What is a Child's Serving of Fruit and Vegetables?

Children should eat *at least* five portions of a variety of fruit and vegetables a day (see page 12). The amount of food a child needs varies with age, body size and physical activity. As a rough guide, one portion is the amount they can fit in the palm of their hand.

Portion sizes increase gradually as children become older and more active. By the time children are 10, they'll be eating the same size fruit and vegetable servings as adults.



5 A DAY For Kids: How Much Do They Need?

- Children aged 2-6 years need 5 portions of fruit and vegetables a day. (A portion is roughly the amount they fit in the palm of their hand.)
- Children aged 6-12 need 7 portions.
- Teenage girls need 7 to 8.
- Teenage boys need 9.

The NHS gives the following guide to portion sizes at:

www.nhs.uk/Livewell/5ADAY/Pages/Portion-sizes.aspx

One adult portion of fruit or vegetables is 80g. The guide here will give you an indication of typical portion sizes for teenagers and adults.



Fruit Portions Fresh Fruit

Small-sized fruit

One portion is two or more small fruit, for example two plums, two satsumas, two kiwi fruit, three apricots, six lychees, seven strawberries or 14 cherries.

Medium-sized fruit

One portion is one piece of fruit, such as one apple, banana, pear, orange, nectarine or sharon fruit.

Large fruit

One portion is half a grapefruit, one slice of papaya, one slice of melon (5cm slice), one

large slice of pineapple or two slices of mango (5cm slices).

Dried fruit

A portion of dried fruit is around 30g. This is about one heaped tablespoon of raisins, currants or sultanas, one tablespoon of mixed fruit, two figs, three prunes or one handful of dried banana chips.

Tinned fruit in natural juice

One portion is roughly the same quantity of fruit that you would eat for a fresh portion, such as two pear or peach halves, six apricot halves or eight segments of tinned grapefruit.

Vegetable Portions

Green vegetables

Two broccoli spears or four heaped tablespoons of kale, spinach, spring greens or green beans.

Cooked vegetables

Three heaped tablespoons of cooked vegetables, such as carrots, peas or sweetcorn, or eight cauliflower florets.

Salad vegetables

Three sticks of celery, a 5cm piece of cucumber, one medium tomato or seven cherry tomatoes.

Tinned and frozen vegetables

Roughly the same quantity as you would eat for a fresh portion. For example, three heaped tablespoons of tinned or frozen carrots, peas or sweetcorn.

Pulses and beans

Three heaped tablespoons of baked beans, kidney beans, cannellini beans, butter beans or chickpeas. However much you eat, beans and pulses count as a maximum of one portion a day.

Potatoes

Potatoes don't count towards your 5 A DAY. They are classified nutritionally as a starchy food, because when eaten as part of a meal they are usually used in place of other sources

of starch such as bread, rice or pasta. Although they don't count towards your 5 A DAY, potatoes do play an important role in your diet as a starchy food.

Juices and Smoothies

One 150ml glass of unsweetened 100% fruit or vegetable juice can count as a portion. But only one glass counts, further glasses of juice don't count toward your total 5 A DAY portions.

One juice/smoothie containing all the edible pulped fruit or vegetable may count as more than one 5 A DAY portion.

For a single smoothie to qualify as being two portions, it must contain either:

- at least 80g of one variety of whole fruit and/or vegetable and at least 150ml of a different variety of 100% fruit and/or vegetable juice, or
- at least 80g of one variety of whole fruit and/or vegetable and at least 80g of another variety of whole fruit and/or vegetable.

Smoothies count as a maximum of two of your 5 A DAY, however much you drink.

Sugars are released from fruit when it's juiced or blended, and these sugars can cause damage to teeth. Whole fruits are less likely to cause tooth decay because the sugars are contained within the structure of the fruit.

Ready-made Foods

Fruit and vegetables contained in shop-bought ready-made foods can also count toward your 5 A DAY.

Always read the label. Some ready-made foods contain high levels of fat, salt and sugar, so only have them occasionally or in small amounts as part of a healthy balanced diet.



Winning tips for 5 A DAY for kids

Try These Quick Tips

- Keep a bowl of fruit on the kitchen table for a quick, easy snack.
- Always have freshly cut vegetable sticks in the refrigerator.
- Add bananas and other fresh or dried fruits to hot or cold cereals.
- Buy frozen mixed berries. Defrost and add to your child's cereal daily.
- Top foods such as veggie sausages or burgers with a homemade salsa made with tomatoes, mangoes, avocados, red onions and lime juice.
- Add bananas and/or berries to pancakes.
- Provide dried fruit instead of sweets.
- Keep a bag of frozen vegetables in the freezer and add to stews, casseroles and stir-fried dishes.
- Freeze fruits such as bananas or grapes for a frozen treat.
- Whilst many kids won't eat a whole fruit, they devour chopped fruit in fruit salads – serve with a little rice or soya ice cream (sold in supermarkets and health shops).
- Always put fruit into a child's lunch box.
- Use your imagination! A child who says 'Nah,' to an apple may eat it if sliced thinly and fanned out. Make fruit faces or veggie monsters. Young children love this and will often reward your efforts by gobbling up

the food and demanding more.

- Think rainbow. Get colour on your plates. Think of five colours, when you think about 5 A DAY for kids. It's what gives the fruit and veg their colour that also protects your child's health.
- Smoothies are a great way to add healthy foods to a child's diet without them thinking it's healthy! Try adding berries, banana and ground cashew nuts to soya milk and whisking. Yum.

Empower Your Child

- Let your child choose a fruit or vegetable that looks appealing at the supermarket.
- Involve your child in preparing meals so that he or she can become familiar with the foods.
- Have a raw and cooked vegetable option so that your child can choose the one s/he likes best. Some children like the crunch in raw vegetables, while others like vegetables to be soft and mushy.



Don't Give Up

- Children can be very picky. It may take as many as 10 to 15 tries with a new food before a child is willing to accept it.
- Think about colour, smell and texture when introducing a child to a new food. A child may enjoy raw crunchy broccoli but not cooked broccoli in casseroles, or soft canned peaches but not freshly sliced peaches.
- Be a positive role model. Eat a variety of fruits and vegetables.
- Encourage your child to try new foods in a comfortable meal environment.

Be a Little Sneaky

- Add broccoli florets or julienne carrots to pasta or potato salad.
- Add spinach, mushrooms or cougettes etc to spaghetti sauce.
- Mash beans and add sweetcorn and carrots in veggie chilli.
- Use lots of veg/lentils etc in puréed soups.
- Use mashed carrots/swede/turnips in mashed potatoes

Note: Raw fruits and vegetables, such as grapes and sweetcorn, may pose a choking hazard for children under 4 years of age. Cut grapes in quarters, grate carrots and remove strings from celery for younger children.

Recipe Ideas

Butterfly Sandwich

What You'll Need:

- 1 slice wholewheat bread
- 2 tsp. peanut butter
- ½ banana
- 1 celery stick

Spread the peanut butter on the bread and celery stick. Place sliced bananas on the peanut butter. Cut the bread diagonally and arrange the triangle pieces so that the points touch each other in the middle. Place the celery stick between the two points on the triangle.



Frozen Fruit Kebabs

What You'll Need:

- Melons, pineapple, berries and grapes
- Skewers without sharp corners

Cut chunks of fresh fruits such as melons, pineapple, berries or grapes. Put the chunks on a stick without sharp corners and place inside the freezer until frozen. These are great for an afternoon snack on a warm summer day.



Strawberry and Banana Kebabs

What You'll Need:

- **Banana and a few strawberries**

Slice banana and strawberries and put on a skewer. Add a little dark chocolate sauce. Simple and delicious!

Ants on a Log

What You'll Need:

- **1 tbsp. peanut butter**
- **5 to 7 raisins**
- **1 celery stick**

Spread peanut butter into a celery stick. Place raisins on the peanut butter.

Many thanks to

www.ucsfbenioffchildrens.org/education/encouraging_your_child_to_eat_fruits_and_vegetables/index.html

What You Need and Where You Get It

All diets need to be properly planned – for vegans and vegetarians no more and no less than meat eaters. All the food you eat – fat, carbohydrate, protein – provides calories. Calories equal energy and so all foods are referred to by the amount of energy (calories) they provide. That's why it's meaningless when food manufacturers make claims such as 'Less than five per cent fat'. That amount of fat probably accounts for one-third of the calories in the sausages or whatever it is they're urging you to buy.

Energy Needs

Recommended total daily calorie intakes:

1-3 yrs 1165-1230

4-6 yrs 1545-1715

7-10 yrs 1740-1970

11-14 yrs 1845-2220

15-18 yrs 2110-2755

Adults 19-49 yrs 1940-2550

Carbohydrates

About 50 per cent of all this energy should come from carbohydrates. For a girl aged 7-10 years that means 870 calories (about 220 grams [g] of carbohydrate per day).

Carbohydrates are our main and most important source of energy. There are three types: 1) fast-releasing, such as table sugar, honey, white

flour, sweets and syrups; 2) slow-releasing complex carbohydrates, such as wholegrains (oats, wholegrain bread, brown rice, wholegrain pasta, rye); and 3) fibre – the indigestible part of fruits, vegetables and grains, essential for the digestive system to work properly.

The World Health Organisation (WHO) reckons we should all be eating far more slow-releasing carbohydrates than we do. A vegetarian diet – based as it is on carbohydrate-rich plant foods – is the perfect way of doing that.

Two slices of bread (about 100g) contains 45g carbohydrate; 50g serving of breakfast cereal 47g; 150g serving of lentils (cooked) 26g.

Fibre

Adults are urged to eat 20-35g per day yet the average intake is only about 12g! Children should eat 5-10g daily, plus add an additional gram for every year of age. Eg a 10 year old should eat 15-20g fibre per day. Fibre is found only in plant foods and not in meat or dairy, so vegetarians tend to be well supplied. Fruits, vegetables, pulses and wholegrain bread, pasta, rice and oats provide it in abundance. Fibre is essential as it helps to prevent constipation, reduce cholesterol levels, makes us feel

full (so helping to avoid overeating) and evens out blood sugar levels. It may also help to prevent some types of cancer.

200g can baked beans contains 7.4g fibre; 200g cooked wholewheat pasta 7g; 50g average-sized apple 1g.

Protein

Daily intake – 14.5g (toddlers) to 55g (adults).

About 15 per cent of our energy should come from protein, which is needed for growth, repairing the body and fighting



infection – and there is more nonsense talked about it than any other nutrient. Vegetarians get all they need simply by eating a variety of different foods – and it’s healthier than meat protein. The bonus for veggies is that they also get more fibre and far less saturated fat.

Good sources of protein are pulses (peas, beans, lentils), nuts, seeds, wholegrain cereals and grains (bread, pasta, rice). Soya beans – in the form of soya milk, tofu (soya bean curd), imitation meats and soya sausages – are equivalent to meat in the amount and type of protein they provide. They also have the advantage of containing strong antioxidant (disease-busting) properties, are rich in fibre and phytoestrogens – chemicals that are thought to have anti-cancer properties – and are high in the essential fats lacking in many people’s diets. Not only does soya contain no cholesterol it can actually help lower cholesterol levels in the body!

The large amount of evidence linking soya to good heart health has even led the US and UK to allow health claims on certain food products containing soya.

200g (about half a can) baked beans contains 10.4g protein; 200g cooked pasta 8g; 150g cooked kidney beans 10.4g; 25g almonds (small packet) 5g; 1 slice bread 4g.

Fat Facts

Fat should make up no more than 30 per cent of your energy intake. Of this, no more than 10 per cent should be saturated fat, the

remainder being a combination of monounsaturated and polyunsaturated fats (see definitions below).

Fats are essential for repairing body tissue, carrying some vitamins around the body and for manufacturing hormones. They also help lubricate our joints. Fats are either saturated (mainly animal fats) or unsaturated. You do not need to eat saturated animal fat but you do need some unsaturated fats – the so-called essential fatty acids or polyunsaturated fats.

There are two types – omega-3 and omega-6. Omega-3 fats are found in dark green leafy vegetables such as broccoli, some nuts (especially walnuts), seeds (especially linseed – also called flax) and soya beans and oils extracted from them. Omega-6 fats are found in seeds such as sunflower and sesame seeds, corn, some nuts (again walnuts) and soya beans and their oils. The most common supermarket oils – general vegetable oil blends – tend to be high in omega-6 fats but very low in omega-3 fats. Using only these types of oil may mean you miss out on the vital omega-3 fats.

Walnuts and linseeds are rich in both omega-3 and omega-6 fatty acids and in the right proportions that the body needs. Essential oils (especially omega-3 ones) are easily damaged by light or heat so they should be refrigerated and only used cold as dressings. It’s also best to refrigerate seeds and nuts for obvious reasons. One to two

handfuls of nuts and seeds or two to four tablespoons of these polyunsaturated essential oils each day is all you need. Olive oil is a monounsaturated fat and is great for cooking as it is much less prone to damage. There’s also good evidence to suggest that olive oil helps lower cholesterol and may be part of the reason why traditional Mediterranean diets



result in lower rates of heart disease.

And don't believe the hype surrounding oily fish as a necessary part of the diet for obtaining important dietary omega-3 fats. Government surveys have found that all fish contain poisons such as mercury, dioxins and



PCB's. Research also shows that it is plant oils, not fish oils, that are most protective of the heart – in fact plant oils give twice as much protection to the heart than fish oils do! (See also our VVF guide *Fish-Free for Life* at [www.vegetarian.org.uk/guides/Fish/.](http://www.vegetarian.org.uk/guides/Fish/))
1 slice of bread contains 1g fat; 220g can baked beans 1g; 25g packet of almonds 14g fat (most of which are the beneficial types).

Calcium

Daily intake – 350mg (toddlers) to 700mg (adults).

Calcium is vital for healthy bones and teeth – in fact, almost our entire calcium supply is bound up in just these two areas of the body! Calcium is also involved in the working of many hormones, blood clotting, regulation of blood pressure, muscular contractions and the sending and receiving of electrical nerve impulses.

Although dairy products are well known to be calcium-rich, cow's milk is not the best source as it also contains saturated fat but contains no fibre, iron or vitamins C, E or beta-carotene. Furthermore, as milk is taken from either a pregnant cow or a cow who has recently given birth, milk contains 35 hormones and 11 growth factors which are linked to breast and prostate cancers. And despite all you read, drinking cow's milk is no guarantee of healthy bones (see Osteoporosis on page 36).

Vegan diets which include regular servings of dark green, leafy vegetables such as broccoli, kale, watercress and parsley; pulses,

seeds (especially sesame and tahini – sesame seed paste) and nuts (especially almonds) are unlikely to be calcium deficient. Most soya milk is fortified with calcium and because it contains no animal protein, it doesn't cause calcium to be lost from the body like dairy and meat do (see Osteoporosis on page 36).

When you stop to think about it, drinking the milk of another species is a very strange thing to do, particularly when no animal has a need for it after weaning – and that includes humans. We do it out of habit and because it is heavily promoted. Imagine drinking the milk of your pet dog or an elephant. Sounds ludicrous – but no more so than drinking the milk of a cow!

“Ideally the infant should be exclusively fed human milk for the first year of life... After the first year of life the child requires no milk of any type. The child, like us adults, can thrive without cow milk ever crossing his lips.”

Frank Oski MD, Formerly Specialist in Paediatric Nutrition and former Director, Department of Paediatrics, Johns Hopkins University School of Medicine and Physician-in-Chief, The Johns Hopkins Children's Centre

100g tofu (soya bean curd) contains 510mg calcium; 1 slice wholegrain bread 50mg; 100g broccoli 40mg; 25g almonds 60mg; 5g serving tahini (sesame seed paste) 34mg; 100ml serving fortified soya milk 120-140mg. This compares with 57mg for eggs and 115-120mg for cows' milk.

Iodine

Daily intake – 70mcg (toddlers) to 140mcg (adults).

Iodine is needed to produce thyroid hormones, that help to control metabolism which determines how fast you burn up food. In infants, thyroid hormones are responsible for development of the nervous system, including the brain. Dairy produce and seaweed (nori, kelp, etc.) are iodine-rich and so are foods which contain seaweed, such as carrageenan, used as a thickening agent. Other sources are Vecon vegetable stock and dark green vegetables.

See our VVF fact sheet on iodine and thyroid problems at www.vegetarian.org.uk/factsheets/index.html
10g dried seaweed contains 50mcg iodine; 5g serving Marmite 2.45mcg.

Iron

Daily intake – 6.9mg (toddlers) to 14.8mg (adults).

Iron helps red blood cells carry oxygen to all parts of the body and everyone needs a good supply. Leading health advisory bodies agree that iron deficiency anaemia is no more common in vegetarians than meat-eaters. This is because there are plenty of iron sources in a veggie diet – pulses (any kind of bean, lentils, peas); dark green leafy veg. (such as broccoli), fortified breakfast cereals, wholegrains (such as wholemeal bread), dried apricots, prunes and figs, black treacle and

even plain dark chocolate or cocoa. The body isn't that great at absorbing iron but the great thing about a veggie diet is that it is loaded with vitamin C from fresh fruits and vegetables which can increase iron absorption fourfold. Drinking tea can reduce iron absorption so avoid your cuppa when eating iron-rich foods.

See our VVF fact sheet on iron in a plant-based diet at www.vegetarian.org.uk/factsheets/index.html
200g lentils contains 7mg iron; 200g baked beans 3mg; 2 slices wholegrain bread 2.5mg; 50g serving fortified breakfast cereal 3.3mg.

Zinc

Daily intake – 5.0mg (toddlers) to 9.5mg (adults).

Zinc is involved in growth, the health of the immune system (so helping to fight infection) and plays a crucial role in enzyme activity. Enzymes are chemicals which help speed up all the reactions that go on in the body (eg digestion of food) and zinc helps keep these enzymes working properly. Good sources include pulses, wholegrains, leafy green vegetables, nuts and seeds.
200g lentils contains 2.8mg zinc; 200g wholegrain pasta 2.2mg; 25g Brazil nuts 1.05mg; 25g sunflower seeds 1.3mg.

Vitamin A

Daily intake – 400mcg (toddlers) to 700mcg (adults).

Vitamin A is needed to maintain a healthy immune system, for the growth and development of tissues, for vision and healthy skin. There are two kinds – one found in plants, called beta-carotene, and one in meat called retinol. The body converts beta-carotene into vitamin A and it acts as an important antioxidant (see page 11). Animal vitamin A – retinol – is not an antioxidant, is found mostly in liver and taken in large quantities during pregnancy can cause birth defects. Foods rich in beta-carotene include green leafy vegetables, carrots, peppers, apricots, watercress, spinach, parsley, sweet potatoes, tomatoes and mangoes.
50g cooked peas contains 125mcg vitamin A; 10g cooked carrots 756mcg; 200g serving chickpeas 42mcg.

B Complex Vitamins B1 (Thiamin)

Daily intake – 0.40mg (toddlers) to 1.0mg (adults).

Vitamin B1 helps to release the locked up energy in carbohydrates and fats, it aids the functioning of the brain, heart and nerves and helps the body cope with stress. Good food sources include wholemeal bread, yeast extract, Brazil nuts, sunflower seeds, oats, black treacle and fortified breakfast cereals. When wheat flour is refined to make white

Animal-free Food Pyramid

Daily guide to the healthiest foods



Plus water – 1-2 litres

Vitamin D source – if little sun – from fortified foods eg cereals, margarine, soya milk

Activity – minimum 30 minutes exercise daily (includes brisk walking)

See page 9 for portion sizes

flour, thiamin is lost so it has to be fortified with it during manufacture.

50g fortified cereal contains 0.50mg vitamin B1; 1 slice wholegrain bread 0.15mg; 25g sunflower seeds 0.40mg; 5g yeast extract 0.16mg.

B2 (Riboflavin)

Daily intake – 0.6mg (toddlers) to 1.3mg (adults).

Riboflavin helps to release energy from fats, carbohydrates and protein and aids healthy skin, hair and nails. It's widely available in plant foods such as yeast extract, wholegrains, almonds, seeds, black treacle and dates.

5g yeast extract (such as Marmite) contains 0.55mg riboflavin; 50g fortified cereal 0.65g; 100ml fortified soya milk 0.24mg.

B3 (Niacin)

Daily intake – 6.6mg (toddlers) to 17mg (adults).

Niacin is needed to release energy from foods and for maintaining skin, nerve, brain and digestive health. It is found in yeast extract, wholegrains including wholemeal bread, dates, nuts and seeds, peas and potatoes.

200g wholegrain pasta contains 2.6mg niacin; 2 slices wholegrain bread 3.8mg; 5g yeast extract 2.9mg; 10g peanut butter 1.25mg.

B6 (Pyridoxine)

Daily intakes – 0.7mg (toddlers) to 1.4mg (adults).

Vitamin B6 is needed for breaking down protein, producing red blood cells and absorbing zinc. It is easily obtained from wholegrains, avocados, bananas, prunes, beans, dried fruits, seeds and nuts.

100g banana contains 0.29mg vitamin B6; 100g avocado 0.36mg; 50g fortified cereal 0.90mg.

B9 (Folate or Folic Acid)

Daily intakes – 70mcg (toddlers) to 200mcg (11 plus).

Folate helps with the making of blood, forming DNA (your genetic blueprint), using protein and is important in preventing defects in the developing foetus. It is found widely in a vegetarian diet in dark green leafy vegetables, pulses, avocado, nuts and beansprouts.

100g broccoli contains 64mcg folic acid; 25g hazelnuts 18mcg; 200g lentils 60mcg.

B12 (Cobalamin)

Daily intakes – 0.50mcg (toddlers) to 1.50mcg (15 plus).

Cobalamin is essential for a healthy nervous system and blood formation and is made by bacteria in the soil. Your liver has stores for up to three years (but you need it daily). Traces may be found on un-washed veg. but this isn't a reliable source. Vegetarians can obtain vitamin B12 from dairy products and free-range eggs. Vegans need to obtain cobalamin from eating B12-fortified foods, such as breakfast cereals, margarine, nutritional yeast (eg Marmite) and soya milk. (Check on the ingredients label that B12 is included.) If you don't eat B12 foods, then take a B12 supplement daily. Flavoured sprays are available which kids usually find easy and fun to use. Vitamin B12 from fortified foods is better absorbed than B12 from meat, poultry and fish. **5g Marmite contains 0.75mcg vitamin B12; 100ml fortified soya milk 0.5mcg; 50g fortified cereal 0.85mcg.**



Vitamins B6, B12 and folate help keep the heart healthy by lowering levels of a chemical in the body called homocysteine. High levels of homocysteine have been linked to increased risk for heart disease and strokes so it is vital that adequate amounts of these B-vitamins are supplied daily in the diet.

Vitamin C (Ascorbic Acid)

Daily intakes – 30mg (toddlers) to 40mg (15 plus).

Your body can't store vitamin C so it needs to be eaten every day. It's an important vitamin – involved in wound healing, maintaining healthy skin, blood vessels and healthy gums. It is also an important antioxidant, helping to keep the immune system fighting fit. Vitamin C also helps the body absorb iron. It is present in a wide range of plant foods but there is none in animal products. Rich sources are berry fruits such as blackcurrants and strawberries, citrus fruits such as oranges as well as green leafy vegetables (eg broccoli), kiwi fruits and tomatoes. Potatoes contain some vitamin C and are an important source, particularly in winter. **100g cauliflower contains 27mg vitamin C; 50g orange 27mcg; 100g banana 11mg.**

Vitamin D

The main source of vitamin D is from that made in the body via the action of sunlight on the skin and it is needed for absorption of calcium. There is no recommended daily amount for the diet but estimates of 10 mcg

per day are given for people who can't get out in the sun. Sun exposure on the hands and face (without sunscreen) for just 15 minutes each day is all that is required to make enough of this vitamin – even cloudy summers will suffice. The liver then stores the vitamin so ensuring a source through the winter.

However for children under five, the sun can't be relied on to supply all that is needed for the growing body so a dietary source may be advised – at least 7mcg per day. Some everyday foods are now fortified with vitamin D – margarines, some breakfast cereals as well as some brands of soya milk.

30g fortified cereal Quaker's Oh! Cereal contains 30% of daily needs for teenagers; 50g of fortified Special K contains 4.15mcg vitamin D; 100ml fortified soya milk contains 0.75mcg.

Vitamin E (Tocopherol)

There are no daily recommendations for vitamin E as it depends on how much polyunsaturated fat you eat – vitamin E protects these fats inside the body. Vitamin E is a powerful antioxidant and protects cells from damage, increases muscle strength and reduces the risk of blood clots – protecting against heart disease and strokes. Only found in plant foods, rich sources are vegetable oils, peanuts, almonds, sunflower seeds, wholegrains, green leafy vegetables and wheatgerm.

200g cooked brown rice contains 0.60mg vitamin E; 20g serving peanut butter 1mg; 25g sunflower seeds 9.4mg.



A fresh source of great tasting, non-dairy milk



Registered by the Vegan Society



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How Animal Products Affect Children

Allergies

The word allergy describes a bad reaction to something – it is the body's defence (immune) system leaping to protect you against what it believes is a foreign invader. Asthma (breathlessness with wheezing), eczema (red, itchy and flaky skin), rhinitis (constant runny or congested nose), hay-fever and urticaria (skin rashes) are classical allergies. Of course, in most cases this defence reaction is unnecessary and so allergies can be a sign of a

'compromised' immune system – it isn't functioning 100 per cent as it should.

Reactions can be particularly violent – and deadly – with allergies to such things as peanuts. Food 'intolerance' produces a less dramatic and slower reaction and may not be the result of a dodgy immune system.

The most common food allergies (or intolerances) are to foods that are eaten regularly, such as cow's milk and wheat. A reaction to the main protein in cow's milk (casein) is the most common allergy in childhood and affects between 4 and 75 babies in every 1000. When a baby swallows cow's milk, bits of this protein get into his or her immune system. Excessive mucus production resulting in a constant, runny nose, blocked ears or a persistent sore throat is often the first sign of a problem with cow's milk. More serious problems such as eczema, colic, diarrhoea, asthma and vomiting are the body's way of trying to get rid of the invader.

A good number of scientists now believe that no whole cow's milk at all should be given to a baby during the first year of his or her life, when the immune system is still developing.

Allergies are on the increase – but why? Saturated fat may carry some of the blame. It was found that the children of mothers who

ate a lot of this fat while they were breastfeeding had an increased risk of allergies later in life.

Crohn's Disease

Crohn's disease also appears to be on the increase and affects about 90,000 people in the UK. This debilitating, chronic (long-term) inflammation of the digestive system is, however, rare in parts of the world where people eat a low-fat, high-fibre diet. The scientific evidence is stacking up, one study pointing the finger at animal protein – meat and cow's milk. Another has discovered that a bacteria found in cattle is the same one that causes Crohn's disease. Apparently pasteurisation of milk – heating it to 72 degrees for 15 to 25 seconds – may not kill these disease-causing bugs.

Heart Disease

"The avoidance of meat is likely to reduce the risk of coronary artery disease, because meat is the major source of saturated fat... High consumption of red meat has adverse health consequences: thus vegetarian diets tend to impart health advantages."

Dr Walter C Willett, Harvard Medical School, one of the world's most distinguished experts on nutrition





Coronary heart disease, or CHD, results from the narrowing of the main blood vessels from the heart which is why it's also called coronary artery disease. The problem stems from hard fatty deposits of cholesterol stiffening and clogging up the arteries. Blood supply to the heart muscles is reduced and may eventually stop completely and the result is a heart attack.

Cholesterol is a major risk factor for CHD – and saturated (mainly animal) fat makes the body produce more cholesterol. Sadly, a lot of children's foods are stacked with saturated fat. Incredibly, autopsy studies show that fatty

streaks in the arteries – the first signs of furring up – are found even in very young children!

The same things which put older people at risk of heart attacks – high cholesterol levels, overweight and high blood pressure – are the same as in young people. The World Health Organisation has become almost weary from repeating how important it is to give kids a healthy, high-fibre, low-fat diet start to life because it's here that the problem of heart disease begins.

See our VWF guide, *Have a Heart* at www.vegetarian.org.uk/guides/guides.htm

Dental Health

You don't need telling that sugar is enemy number one when it comes to tooth decay (dental caries). But all kinds of foods can play a part, depending on their stickiness and nutrient content. A small plain chocolate bar eaten in one go for instance is less damaging than sucking on a chewy sweet for ages that literally sticks to the teeth. There are also foods that help reduce decay – rice, bread and potatoes and the less refined they are the better. So it follows that a vegetarian diet based largely on unrefined carbohydrates tends to produce fewer and smaller cavities. Fresh fruit, even though it contains fruit sugars (fructose), is less damaging than the sugar in sweets.

Diabetes

Type 1 diabetes (insulin dependent diabetes mellitus or IDDM for short) is when the body produces no insulin. Type 2 (non-insulin dependent diabetes mellitus – NIDDM) is where insulin is still produced but the body becomes less sensitive to it. Insulin is a hormone which helps the body to absorb glucose (sugar) from the blood. Without it, blood sugar levels rise.

Diabetes can lead to heart disease, kidney failure and blindness. Type 2 is rising dramatically but the right kind of diet can correct or even prevent it. (See Diabetes section on page 34).


Cow's milk in infancy may trigger type 1 diabetes by destroying the body's ability to produce insulin.



Food Poisoning

"A diet free of meat, fish, milk and eggs is by far the safest and one that I highly recommend."

Emanuel Goldman, Professor of Microbiology & Genetics



A recent government report said that an astonishing 9.5 million people in the UK get food poisoning each year and the ones most at risk are little children under one. Eating animal products causes a staggering 95 per cent of all cases, with meat being the main culprit as the guilty bacteria thrive on rotting flesh.

Poor hygiene can spread the infection to normally safe foods through contamination.

Perhaps even more worrying is the fact that one in 10 British children are carrying superbugs resistant to one or more antibiotics. Antibiotics are the last refuge when food poisoning develops into blood poisoning. There are now fewer and fewer that will work when they're really needed – to save

lives. They have been used almost on a daily basis to dose animals in factory farms in a desperate attempt to control the rampant diseases that these systems spread and the bacteria have simply become resistant.

The three main food-poisoning bacteria resistant to drugs are: Salmonella, Campylobacter and Escherichia coli (E. coli). Whilst E. coli normally lives quite happily in our guts without causing any harm, some strains cause disease. The most serious is E. coli 0157. It can stick to the gut wall and release a chemical into the bloodstream which causes kidney failure. Again, it is the young who are most at risk. This superbug is thought to be the single biggest cause of kidney failure in children and it is spread from the faeces produced by farmed animals – cattle in particular.

According to the government there are some foods you can eat to avoid the risk of food poisoning – foods that cut your risk by up to 70 per cent. Four of these are pulses, salad, fruit and rice – all everyday ingredients in a veggie diet.

(See Viva! guide *Stop Bugging Me* for further information on food poisoning at www.viva.org.uk/guides/stopbuggingme.htm)

Overweight and Obesity

The UK population as a whole has a serious weight problem and that includes children. One-third of children are now overweight or obese in the UK.

Mild obesity in childhood is linked to an





increase in many conditions such as blood pressure, fatty streaks in the arteries, high cholesterol, fractures and diabetes type II.

There's no mystery about the causes of obesity – diet and activity play equal parts. Meat and dairy (such as cheese, butter and ice cream) come loaded with hefty amounts of 'bad' saturated fats while vegetarian diets contain more carbohydrates, pulses, fruits and vegetables and less fat. No surprise, then, that vegetarians and vegans are, on average, leaner than meat eaters and more likely to be their ideal weight.

For more information see our VVF *Globesity* report at www.vegetarian.org.uk/campaigns/globesity/index.html

And our helpful guide on losing weight, the *V Plan Diet* at www.vegetarian.org.uk/guides/vplan01.html

Rheumatoid Arthritis

Rheumatoid arthritis affects more than 750,000 people in the UK and one child in every thousand. Dairy products, meat and eggs can all be triggers as can corn, nuts and citrus fruits. In one case a 14 year-old girl who had been hospitalised nine times since the age of eight with painful and swollen joints was diagnosed with juvenile rheumatoid arthritis. She was told to avoid dairy products and the swelling disappeared within a week. The arthritis returned three times in later life, each time after she'd eaten dairy products. A small piece of milk chocolate was enough to trigger it.

Toxins

Government tests show that more than 40% of all our food contains pesticide residues. Highly poisonous chemicals have polluted all the world's oceans and they have contaminated every single sea creature. Because of this, eating fish is increasingly a risky business – and particularly oily fish such as mackerel, herring, sprats and pilchards because fat soaks up the poisons. Farmed salmon, who are largely fed on wild-caught fish, are a particular problem.

The culprits are substances called PCBs and dioxins and they can damage the immune system and affect a child's intelligence. They can even have a gender-bending effect, producing male characteristics in females and vice versa. Produced by industrial processes, PCBs are now banned but they will hang around in the environment for decades. They contaminate particles in the sea which are eaten by small fish. The poisons concentrate in their fat and so it goes on up the food chain as little fish are eaten by bigger fish.

The problem is extremely serious and affects meat and dairy to some degree as well because of their high fat content. The European Commission (EU) guidelines on safety limits for dioxins in foods means that half of all British children under five years old could be exceeding safety levels.

How Animal Products Affect Adults

Little people inevitably become big people so it's important to look at how animal products can affect adult health. Children who learn healthy eating habits tend to eat healthily when they grow up so a plant-based diet has long-term importance for them – but also for parents!

Cancer

"In this study, the 40 per cent reduction in cancer mortality in non-meat eaters compared with meat eaters could not be explained by differences in smoking habits, obesity and socio-economic status... The fact that total mortality was about 20 per cent lower in the non-meat eating group than the meat eaters is perhaps of greatest clinical importance."

British Medical Journal

Translated, this research found that vegetarians get a 40 per cent less risk of dying from cancer and they live longer than meat eaters. Cancer experts worldwide now believe that over a third of cancer deaths – and


possibly many more – could be linked to diet. Leading cancer expert, Professor Sir Richard Doll, estimates that 20-60 per cent of cancers might be avoided through diet.

Over a quarter of a million people are diagnosed with cancer every year in the UK and a staggering one-in-four of the population in the UK will die from it. Cancer is second only to heart disease as the major killer in the Western world, despite the knowledge that vegetables, fruit and plant foods considerably reduce the risk.

It's also known that the process of cooking meat, particularly at high temperatures for long periods, produces cancer-causing chemicals (carcinogens) called heterocyclic amines. It happens with all meats but the level in chicken is 15 times higher than in beef – which rather destroys the image of chicken as a healthy option. Heating plant proteins such as soya doesn't produce these killer chemicals.

Fats – and particularly animal fats – produce bile acids in the digestive system that appear to promote cancer of the colon. Diets rich in fibre can reduce bile acids and low-fat diets seem to produce more 'natural killer' cells than high-fat diets. They seek and destroy abnormal cells that may turn cancerous.





Breast Cancer

Some 44,000 cases of breast cancer are diagnosed in the UK every year. One in eight women in the UK will develop breast cancer at some point in their life. Asian countries traditionally have much lower rates of breast cancer but when Japanese girls are raised on Western diets their rate of breast cancer increases dramatically.

The Women's Health study looked at 41,836 women over a long period of time and found that the risk of breast cancer rose when well-done to very-well-done meat was eaten.

Cow's milk also carries a possible risk of breast cancer and one particular ingredient is suspected. It's a hormone called Insulin-Like Growth Factor-1 (IGF-1). The same hormone occurs naturally in humans and stimulates growth in children but declines as a child ages. It's known that the IGF-1 in cow's milk encourages breast cancer cells to multiply. It's also known that when pre-menopausal women have even small increases of IGF-1 in their blood, their risk of breast cancer increases seven times.

One theory is that drinking cow's milk after weaning may cause breast cells to keep on multiplying.

See VF's guide, *A Fighting Chance*, for helping prevent and beat breast cancer.



Bowel Cancer

Over 27,000 people each year in the UK develop cancer of the colon and rectum. Women who eat the most animal fat are at greater risk – and it's much the same for men.

Large numbers of people have given up red meat in favour of 'healthier' white meat – fish and poultry – and yet both red and white meat increase the risk of colon cancer. People who eat only white meat less than once a week have a 55 per cent higher risk than those who don't eat any meat at all. When they eat it at least once a week, the risk increases three-fold. On the other hand, eating beans, peas or lentils at least twice a week drops the risk of colon cancer by 50 per cent.

The risk of colon cancer seems to depend on the overall healthiness of your diet. Fruits, vegetables and fibre reduce your risk while following the official health advice, and swapping high-fat dairy products for low-fat ones, butter for margarine, red meat for poultry and refined grains for wholegrains, also reduces your risk – but only slightly.

The evidence is beginning to stack up that

there is a link between eating meat and processed meat products and colon cancer. This risk is described as 'moderate' but significant and it's been shown that frequent consumption of beef, veal, pork and lamb can increase your chances of colon cancer by 20-40 per cent.



Prostate cancer

Prostate cancer is the most common cancer in men and the second most common cause of male cancer deaths after lung cancer. Although it rarely occurs in younger men, one in nine men in the UK will be diagnosed with prostate cancer at some point in their lives (Cancer Research UK, 2011).

Professor Jonathan Waxman, who founded the Prostate Cancer Charity, believes that diet plays a big part – particularly red meat and dairy products.

The reason why dairy products are in the frame is again believed to be the hormone IGF-1 – the same as in breast cancer. It's known that vegan men have less IGF-1 than meat eaters, which might reduce their risk of prostate cancer. Other research has shown that the hormone oestrogen in cows' milk may also trigger prostate cancer. Levels of oestrogen are markedly higher in milk than they were 20 years ago due to 75 per cent of milk now coming from pregnant cows. Vegetarians are half as likely to get prostate cancer as meat-eaters (NHS Direct, 2006). This protection may be partly due to the protective role conferred by the nutrients selenium and lycopenes found in vegetables, particularly tomatoes.

More info is at www.vegetarian.org.uk/campaigns/whitelies/wlreport09.shtml#prostate

The very best anti-cancer diet

Well it certainly isn't meat and dairy. As people move towards a plant-based diet so the risks of developing cancer reduces. In the words of Professor Jane Plant: "Undoubtedly, the best anti-cancer diet would be completely vegan." Cancer specialist Doctor Rosy Daniel thinks similarly: "The best move... is to become completely vegan and eliminate animal products from the diet altogether."

How does a plant diet protect against cancer? Fibre helps to sweep toxins out of the body and the rich supply of protective antioxidants protect body cells against damage. Some foods, such as broccoli, Brussels sprouts, cabbage and cauliflower, almost certainly help to prevent cancer. That's why we're recommended to eat at least five portions of fruits and vegetables every day and to eat more starchy carbohydrates.

Plant foods also contain protective 'plant hormones' (phytoestrogens) and soya products contain the most. There is a bit of confusion because whilst most research point to soya having cancer-preventing properties, a very few show the opposite. However, the evidence today is that soya foods are beneficial. (For further information, see WVF's guide *The Soya Story*.) Meat and dairy products contain no antioxidant vitamins, no fibre and no protective phytoestrogens. Is it really surprising, then, that all-veggie diets are the best anti-cancer diets around?



"Vegetarians have lower rates of obesity, coronary heart disease, high blood pressure, large bowel disorders and cancers and gall stones. Cholesterol levels tend to be lower and vegetarian diets have been noted to lower blood cholesterol. The vegetarian diet is adequate for the nutritional needs of infants."

British Medical Association

Coronary Heart Disease (CHD)

CHD is the UK's number one health problem with one-in-five men and one-in-six women dying from it. World-renowned heart transplant surgeon, Christiaan Barnard, believes that most heart attacks are unnecessary – we have the power to prevent them. Not surprisingly he advocates a diet where fruits and vegetables, not meat, are the mainstay.

Vegetarians are less at risk of heart disease and have 25 per cent less chance of dying from it. If everyone in the UK went vegetarian, about 40,000 lives a year would be saved – a veggie diet should be available on prescription! Recent research came to just this conclusion:

"... dietary intervention with a vegetarian diet seems to be a cheap, physiological and safe approach for the prevention, and possibly management of modern lifestyle diseases."

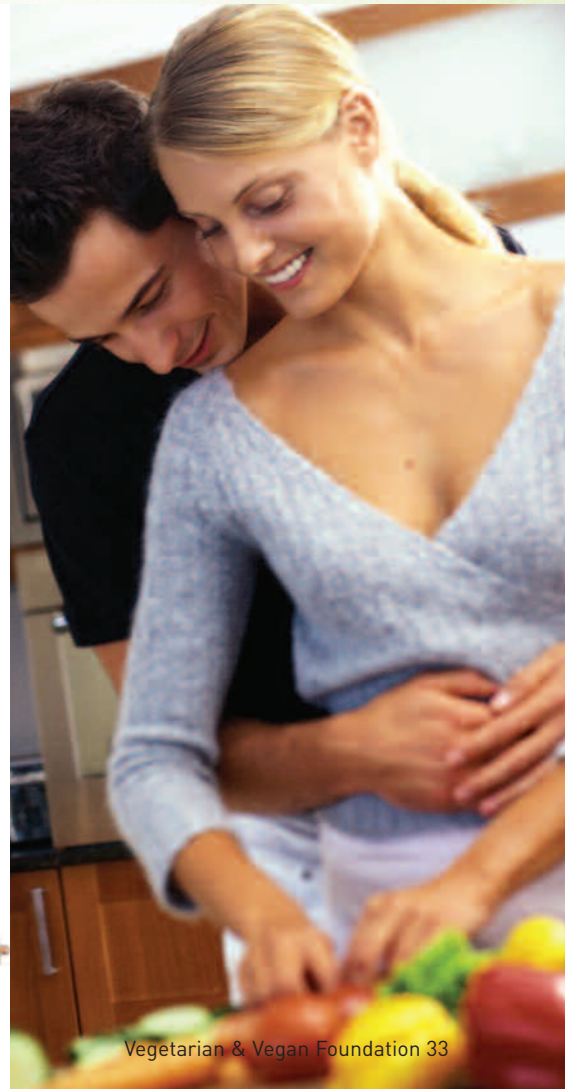
Flinders University, Australia

Apart from having lower body weights, lower cholesterol levels and lower blood pressure levels, new research adds another clue as to why vegetarians get less heart disease. Salicylic acid in the blood of vegetarians is up to one-and-a-half times higher than in meat eaters – some had levels 12 times higher! Salicylic acid is the main ingredient in aspirin, prescribed to reduce the risk of heart attacks by fighting the inflammation that causes it. Salicylic acid is also present in fruit and vegetables! The same research came up with evidence that salicylic acid may protect against bowel, breast and lung cancer as well as Alzheimer's disease.

Cholesterol and Saturated Fat

Cholesterol is not the only risk factor in heart disease but it is a major player. It's found only in foods of animal origin – there's none in plant foods. As our liver makes all the cholesterol we need, we can cut it out of our diet entirely.

People talk of 'good' cholesterol and 'bad' cholesterol and your body contains both main types. Bad cholesterol (low-density lipoproteins or LDL) is dumped on the artery walls, reduces blood flow and causes heart attacks and strokes. Good cholesterol (high-density lipoproteins or HDL) is carried to the liver so the body can get rid of it. Most of your



Diabetes

Diabetes type II is much more common than type I. It affects about 150 million people worldwide – 22.5 million in Europe and two million in the UK. About 90 per cent of those affected are overweight or obese. The WHO estimates that by 2025 the problem will have doubled to at least 300 million worldwide.

The science again shows that vegetarians and vegans are considerably less at risk. Research with 25,000 adult Americans put it at about 45 per cent less. For those who already have diabetes, there's strong evidence that high-fibre, low-fat diets improve the situation and even without exercise, vegan diets can bring down blood sugar levels.

A low-fat, high-fibre diet helps insulin to work better because it allows sugar to pass into the bloodstream a little at a time rather than all at once. Dietitians now recommend that wholegrain pasta, rice, bread and other complex carbohydrates – along with peas, beans, lentils and vegetables – form the main part of any diabetic diet. See the VVF's *Defeating Diabetes* report and guide.

cholesterol is made up of the baddies. Saturated fat encourages your body to produce too much and a high level carries the risk of heart attack.

People who turn to lean red meat and white meat to reduce their cholesterol levels are going to be disappointed because it's largely ineffective – about a five per cent reduction at best. Low-fat, vegetarian diets, devoid of all meat, can bring cholesterol down by up to 32 per cent. When lean meat was substituted for soya bean curd (tofu) again levels fell considerably.

There is increasing evidence that vegans have an even greater advantage. Lifelong vegetarians have been shown to have cholesterol levels 24 per cent lower than average and lifelong vegans 57 per cent lower. Just as importantly, vegetarian and vegan diets can reverse the damage done by CHD, even in severe cases.

“The Reversal Diet is a very low-fat vegetarian diet... This is what the patients in our study consumed, whose coronary heart disease began to reverse. I am convinced that this is the world's healthiest diet for most adults, whether or not they have heart disease.”

Dr Dean Ornish, School of Medicine,
University of California



Diverticular Disease

Diverticular disease is one of the most common disorders of the colon among elderly people in Western societies but again vegetarians suffer less. Small pouches form in the wall of the intestine and become inflamed. A study of 48,000 US men found that a diet high in fat and red meat and low in fibre increased the risk.

Gallstones

Gallstones are made up mostly of cholesterol crystals and are formed when bile (digestive fluid) becomes saturated with cholesterol. High-fibre diets stop gallstones forming, which is why the World Health Organisation recommends a starchy diet as protection. Meat-eaters stand twice the risk than do vegetarians. The causes are the same old suspects – too little fibre, saturated fat, cholesterol and obesity.

Hypertension

High blood pressure is caused by stress, alcohol, obesity and poor diet and plays a part in heart disease and strokes (see *Strokes*, page 37). Many people don't even realise they have it.

In England, one in 10 people between 45 to 54 have high blood pressure. Not only do vegetarians suffer much less but a meat-free diet can help lower blood pressure.

When 29 patients, who had suffered from high blood pressure for eight years, were put on a vegan diet for a year, so successful was it

that almost all medication was withdrawn or drastically reduced. See VVF's *Have a Heart* guide.

Kidney Disease

"A well-planned vegetarian diet may be useful in the prevention and treatment of renal [kidney] disease..."

American Dietetic Association

For those with kidney disease, plant proteins may increase survival rates and reduce kidney damage. According to Dr Neal Barnard of the Physicians Committee for Responsible Medicine (PCRM), animal protein is the worst enemy of people with a tendency toward kidney stones, or any kidney disease for that matter.

Animal protein tends to overwork the kidneys, making them less efficient at filtering waste from the body in the urine. Animal protein is high in sulphur which can leach calcium from the bones and form painful kidney stones. Meat and eggs contain up to five times more of these sulphur compounds than grains and beans. So, vegetarian diets tend to produce less wear and tear on the kidneys. A Harvard University study found that animal protein was directly linked to the risk of kidney stones and just small increases in meat consumption pushed that risk up.

People with kidney problems are usually put on a low-protein diet yet it's been shown that a vegan diet is extremely effective and has the added advantage of being a healthier alternative.



Lactose Intolerance

With lactose intolerance, the body can't digest the sugar in cow's milk called lactose. It's found only in milk and has to be broken down in the small intestine by an enzyme called lactase. No surprises, then, that it is only babies who normally have this enzyme. Nature didn't provide adults with it as they wouldn't need to drink milk after weaning.

Undigested lactose reaches the large intestine where bacteria act on it, creating gas and drawing water into the digestive tract. The result – bloating, stomach cramps and a lot of gas! Up to five million people in the UK are lactose intolerant; in the US it affects about 50 million people and a staggering 75 per cent of the world's population is lactose intolerant! This shows just how unnatural cow's milk really is for adults and why it plays a part in a host of diseases, including irritable bowel syndrome.

Obesity

Currently, over half of women and about two thirds of men are overweight or obese – a condition linked to heart disease, high blood pressure, diabetes, arthritis, gallstones and some cancers. Fat around the stomach area is thought to be particularly damaging. Knowing the problem is one thing, doing something about it is quite another. Which is why all leading health advisory bodies stress the importance of encouraging children to eat a healthy diet. Quite simply, non-meat eaters are slimmer than meat-eaters! See the *V-Plan Diet* guide.



Osteoporosis

Osteoporosis – porous or brittle bones – is the major cause of bone fractures in the elderly and is a result of thinning bones due to loss of calcium. The number of hip fractures is reaching epidemic levels in many affluent countries, affecting a staggering one-in-three women and one-in-12 men in the UK over the age of 50.

Despite our obsession with drinking cow's milk for calcium, supposedly to prevent osteoporosis, it isn't working. Countries with the highest calcium intake have the highest risk of osteoporosis. Research with 77,000 women found that those who got most of their calcium from cow's milk had significantly more fractures than those who drank little or no cow's milk.

Bone density increases until the mid-thirties and is dependent on genetics, hormones and nutrition. Keeping active with weight-bearing activities such as walking and skipping is important. But the main cause of osteoporosis in Western countries is not lack of calcium – it is loss of calcium. Vegetarians have less than half the calcium losses than meat-eaters.

Animal protein produces acid in the body whilst most fruit, vegetables and pulses form alkalines. Acids are neutralised by using calcium from the bones, which is then excreted in urine. Elderly people who eat a lot of animal protein but little vegetable protein have a greater risk of hip fractures. Cutting down on meat and dairy – or cutting it out entirely – reduces the amount of calcium you need and there are plenty of plant foods that can provide it. (See calcium section on page 19).

Rheumatoid Arthritis

Rheumatism is any painful condition affecting bones, ligaments, joints, tendons or muscles. Arthritis is a form of rheumatism where the joints become inflamed. Rheumatoid arthritis (RA) is a disease where the immune system attacks its own tissues – in this case cartilage and joint linings. Meat, dairy produce and eggs can all be triggers for arthritis and can also encourage hormone imbalances that can contribute to joint pain.

When RA sufferers were put on a vegetarian diet, they showed a significant reduction in

pain, stiffness and swollen joints after just four weeks. Researchers have come to the conclusion that vegetarian diets might be useful in the treatment of RA and that meat and offal may be a major factor contributing to the inflammation in RA.

Strokes

A stroke is sudden damage to the brain caused by lack of blood supply or rupture of a blood vessel in the brain. The damaged cells die and the parts of the body they control cease to function. A major cause is furring up of the arteries – made worse by high blood pressure and diabetes. Strokes are responsible for about 12 per cent of all deaths in England. About 30 per cent of people who have a stroke die within a few weeks and about one half of those who survive will have a lasting disability. Since vegetarians suffer less from high blood pressure and coronary artery disease than meat-eaters, a veggie diet is a sensible preventative.



Children's Eating Habits

Why, when children are free to choose their own diet, do they choose the foods they do? The three main reasons – they choose what their parent's eat, advertising and family income – all need to be tackled if kids are to have a healthy future.



*Read *The China Study* by Professor T. Colin Campbell from the VVF www.vegetarian.org.uk/shop or call 0117 970 5190 (Mon-Fri 9-6).

Conclusions

The types of food that children and adults should be eating for life-long health are now abundantly clear. There is a wealth of scientific research – not least the China Health Study*. It looked at the diets and health of people in 65 rural counties in China and was the largest and most comprehensive survey of diet, disease and death in the world.

Overseer of the project is Professor T. Colin Campbell – Professor of Nutritional Biochemistry at Cornell University in the US and long-time senior science advisor to the American Institute for Cancer Research and the World Cancer Research Fund. Results are unambiguous – we are a vegan species whose risk of disease is

increased by eating meat, dairy and other animal products. And it's not good enough simply to increase the amount of fruit and veg. you eat. As Professor Campbell says: "The closer one approaches a total plant food diet, the greater the health benefit... Animal foods, in general, are not really helpful and we need to get away from eating them."

Vibrant, life-long health for children is dependent upon eating all the essential protective foods and rejecting all the harmful ones. Scientific evidence shows quite clearly what this means – plant-based not animal-based foods. And the time to start encouraging your children to adopt meat and dairy-free eating is now.



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