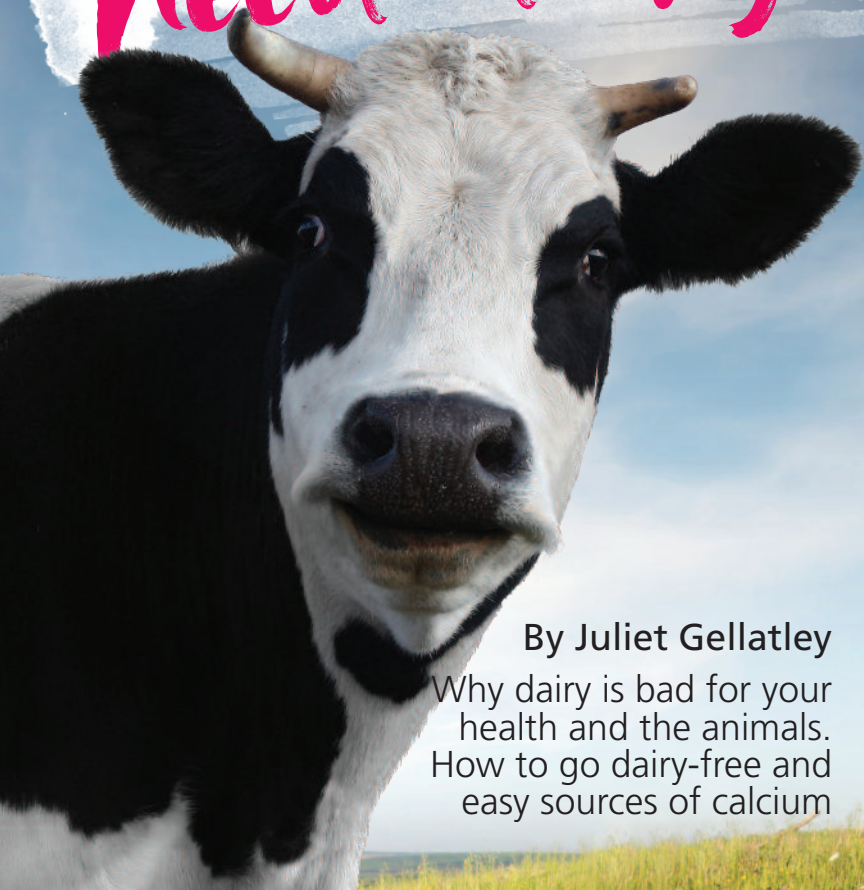


Viva!

WHY YOU

Don't
need dairy



By Juliet Gellatley

Why dairy is bad for your
health and the animals.
How to go dairy-free and
easy sources of calcium



Viva!

BYEBYE BABY!

Just born, she'll be taken away from her mother within the next 24 hours. No matter how agonisingly they call to each other across the farmyard, their separation will be permanent.

Not one bad farmer but the industry standard. Viva!'s undercover teams have regularly exposed the many cruelties there are in milk – and sales are falling. Please support us and help us to continue fighting for animals.

Photo © Jo-Anne McArthur-We Animals

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or call 0117 944 1000 (Mon-Fri, 9-6)

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OUR WEBSITES

scarydairy.org.uk all about being dairy-free including dairy-free alternatives, animal welfare, health and nutrition
viva.org.uk everything about going and being vegan and our campaigns to save animals and the planet
vivahealth.org.uk health and nutrition resources and campaigns
veganrecipeclub.org.uk hundreds of tasty dairy-free, vegan recipes
30dayvegan.viva.org.uk sign up for a month's free daily help with breakfast, lunch and evening meal ideas and recipes plus nutrition tips, veg celebs, cookery videos – there's also a CAN'T COOK, WON'T COOK version!
myvegantown.org.uk discover local eateries that offer vegan options and find out what events are happening across the UK

ABOUT VIVA!

Viva! is a vivacious, vibrant campaigning charity that fights animal cruelty and slaughter. We have worked for many years on the ground-breaking White Lies campaign, now relaunched as Scary Dairy. We expose the impact dairy has by investigating major players in the industry and researching the science on how milk affects our health.

Viva! also loves helping people to take the step to a healthy, humane diet and so has wonderful, inspirational but, most of all, useful resources, including viva.org.uk/easyvegan

Viva!

MORE ON BEING DAIRY-FREE

White Lies: a mighty scientific report on the impact of dairy on our health; fully-referenced scarydairy.org.uk/whiteliesreport
Dark Side of Dairy: a report on the welfare of cows and their calves in the dairy industry; also fully-referenced scarydairy.org.uk/darksidereport
Everyone's Going Dairy-Free: an easy-to-read shopping, food tips and delicious recipe guide vivashop.org.uk/dairyfreeguide
Wallcharts: including *My calcium-rich foods reminder* from vivashop.org.uk/calciumposter and *What I need each day for good health* from vivashop.org.uk/goodhealthwallchart

All the above are at scarydairy.org.uk or enjoy browsing through lots more resources, books and a whole array of vegan gifts at vivashop.org.uk

THANK YOU...

...to my fine colleagues and friends, Dr Justine Butler and Veronika Powell, for their excellent research on dairy. To our investigators – brave souls, you know who you are! Tony Wardle for patient editing!



ABOUT JULIET

Juliet Gellatley founded Viva! in 1994 – a vibrant, campaigning group with a health and nutrition arm, Viva!Health. Viva! is the biggest vegan organisation in Europe.

Juliet has created and launched numerous campaigns fighting animal cruelty and promoting veganism. She's written several reports, guides and books. She investigates animal cruelty first hand – including the largest investigation to date of dairy farming in the UK – and uses her footage to bring the truth to millions, eg see viva.org.uk/faceoff.

She has given hundreds of talks and media interviews.

Juliet is a qualified nutritional therapist and has a degree in zoology and psychology as well as diplomas in direct marketing and nutritional therapy. She is a Pride of Britain Winner for Animal Welfare.



WHY YOU *Don't* need dairy

By Juliet Gellatley BSc, DIP CNM, founder & director, Viva!

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TAKE A DEEP BREATH. SIT BACK AND RELAX.

What I'm about to say may shake a few entrenched beliefs but stay with me. It'll be worth it!

Drinking milk is unnatural

'Hey, what!', you may be thinking, 'drinking milk is as natural to people as purring is to a cat'.

Drinking milk is the most innate thing in the world – if you're a baby and you're suckling from your mum, that is. Like all 5,000 or so species of mammals on this planet, we have evolved to drink the milk of our mothers until weaned. But we are the only mammal to drink milk after weaning (apart from animals we control of course) – and certainly the only one to drink the milk of another species!

The dairy industry is clever – it pays well to attract clever people! It uses the strong emotional bond we have with milk and twists it into something cruel and warped. Into false logic. They're able to do this because our attachment to milk is hardwired. It is our first food and breastfeeding is extremely intense, basic, pleasurable and instinctive – and is about survival. But taking milk

Like us, cows have a nine month pregnancy. Also like us (and all mammals), they produce milk only after giving birth to their baby.

from a cow, goat or sheep is not natural and was never meant to be our first food or eaten at any point in our lives.



I SUCKLED FROM MY DOG TODAY

If this sounds strange, think how you'd feel if your best friend told you that they suckle from their pet dog or cat. You walk into their house and they offer you a cuppa. You're parched and gratefully say yes, and they bend down to their lactating dog or cat and express milk from them for your tea.

Next they tell you that the puppies or kittens are taking too much of their mother's milk so they have decided to kill the males and keep the females for future milk production.

Whether or not this idea shocks you (and I hope it does), my point is that this behaviour is most definitely not natural! It would be closer to nature's intentions if we suckled from adult women who have given birth rather than take the milk of a rabbit, dog, cat, horse, cow, elephant, gorilla, tiger, hedgehog, bear, squirrel, walrus or dolphin... because at least that milk would be from the same species.



BUT WE'VE DRUNK MILK FOR YONKS!

Although cattle, sheep and goats were domesticated in parts of the Middle East and central Asia over 9,000 years ago, there is no evidence that these animals were milked. Written texts, paintings, drawings and analysis of dairy fat residues on pottery fragments suggest that people started exploiting these animals for milk between 6,000 and 8,000 years ago (Evershed *et al*, 2008; Salque *et al*, 2013).

Although this sounds like a long time ago, in evolutionary terms it is the blink of an eye. The fossils of modern

humans date back nearly seven million years and if that were represented as a twelve-hour clock, starting at midday and now at midnight, we would have begun dairy farming less than one minute ago.

Also, early dairy farming was practised on a tiny scale compared to today, with most societies eating very little, in stark

contrast to our post-Second World War binge on dairy. In the last 30 years, the average herd size in the UK has more than quadrupled. The cows themselves are being pushed beyond their biological limits, selectively bred to produce more and more milk. For example, in the UK milk production has more than doubled in recent years. In the 1970s, a cow produced an average of 12 litres (21 pints) per day but by 2015 it had skyrocketed to 26 litres (46 pints) per day (AHDB Dairy, 2016). High yielding cows produce an astonishing 51 litres (90 pints) a day (*Farmer's Weekly*, 2018).

Cow's milk is meant to get a calf to triple his or her weight within a year to an adult weight of a whopping 300-400kg. We, on the other hand, are the slowest growing mammal taking about 18 years to reach adult weight.

COW'S MILK: IDEAL FOR CALVES NOT HUMANS

The composition of milk varies widely from animal to animal, providing the perfect first food for the young of that species. A seal's milk is extraordinarily fatty (50 per cent fat) so that seal pups can grow very quickly, depositing a thick layer of blubber that will protect them from the cold and sustain them as they learn to hunt.

Just as we are different from seals, we are not exactly the same as cows either! It won't surprise you, then, that cow's milk is very different from human milk – which is why we mustn't give ordinary cow's milk, condensed milk, dried or evaporated milk to a child under the age of one. If a human baby is given cow's milk, it has to be changed into a formula that attempts to replicate human milk.

Cow's milk is meant to help a calf grow very rapidly indeed, reaching 47-63 stone (300-400kg) within a year. We, on the other hand, take about 18 years to reach adult weight (a woman of 5'4" has an average weight of about 10 stone 3lbs (65kg); a 6' man has an average weight of 13 stone (83kg)). So, we have very different rates of growth and while cow's milk and human milk contain a similar percentage of water, the relative amounts of fat, carbohydrate, protein, vitamins and minerals vary widely. So let's look at four of these main nutrients (for more information see the *White Lies* report at scarydairy.org.uk/whiteliesreport).

The weight gain of calves during their first year is nearly 40 times greater than that of breastfed human infants. One big reason why cow's milk and human milk are so different.



HOW DOES COW AND HUMAN MILK DIFFER?

1 FATS

Cow's milk is lower in polyunsaturated fats than human milk. Lower levels of polyunsaturated fats show just how unnatural cow's milk is for our babies because these are the very fats which are essential for human brain development! In humans, the brain develops rapidly during the first year of life, growing faster than the body and tripling in size by the age of one. Brains are largely composed of fat and early brain development requires a sufficient supply of polyunsaturated fats called omega-3 and omega-6 and both are present in greater amounts in human milk.

Cow's milk is higher in saturated fats than human milk. A swift increase in body size is more of an imperative for cows than rapid brain development, so cows produce milk that is high in body-building saturated fats.

2 CALCIUM

The calcium content of cow's milk (120mg per 100ml) is nearly four times greater than that of human milk (34mg per 100ml). There is a reason for this discrepancy – calves grow much more quickly and have a larger skeleton than human babies and therefore need much more calcium (FAO, 1997).

Cow's milk is specifically designed to meet this high demand and is another reason why whole cow's milk is not recommended for infants under 12 months. Although human milk contains less calcium, it is more easily absorbed than that found in cow's milk (Greer and Krebs, 2006).

3 PROTEIN

There is a bit of an obsession in our society about protein ("but are you getting enough?"), so you may be surprised to discover that human breast milk has the lowest percentage of protein of all mammals on our planet (Bounous *et al*, 1988).

The amount of protein in milk is linked to the amount of time it takes that particular species of animal to grow in size. You'll have guessed by now that calves need more protein for their fast growth rate than human babies! That's why cow's milk has three times as much protein as human breast milk. The weight gain of calves during their first year is nearly 40 times greater than that of breastfed human infants! And in fact, cow's milk-based infant formula contains high protein and hormone levels which are linked to human babies being overweight or obese (Melnik *et al*, 2012).

HOW LOW CAN YOU GO?

Examples of percentage of protein in mammalian milk – humans are lowest

Animal	% protein	Animal	% protein
Whale	13.6	Sheep	5.4
Mouse, house*	12.5	Elephant	4.9
Lion*	11.8	Cow (skimmed)**	3.5
Seal, grey	11.2	Bat (large	
Cat	11.1	flying fox)	3.1
Reindeer	10.3	Goat	3.1
Bear, polar	10.2	Horse	2.7
Dog	9.5	Monkey	2.1
Mink	7.0	Donkey*	1.7
African buffalo*	6.3	Mountain gorilla*	1.4
Kangaroo	6.2	Human***	0.8-1.3

*, **, ***Sources on page 106

4 IRON

Cow's milk contains very little iron, which is another reason why it is unsuitable for infants under the age of one year. The UK's Department of Health has advised that babies are not given cow's milk before the age of 12 months. One day (I'm an optimist), it will be advised against at any age.

If you are erring on the side of caution (or disbelief!), here's a 2018 quote from the American Academy of Paediatrics on their web site healthychildren.org, aimed at parents:

'Cow's milk contains high concentrations of protein and minerals, which can stress a newborn's immature kidneys and cause severe illness at times of heat stress, fever, or diarrhoea. In addition, cow's milk lacks the proper amounts of iron, vitamin C, and other nutrients that infants need. It may even cause iron-deficiency anaemia in some babies, since cow's milk protein can irritate the lining of the stomach and intestine, leading to loss of blood into the stools. Cow's milk also does not contain the healthiest types of fat for growing babies. For these reasons, your baby should not receive any regular cow's milk for the first twelve months of life.'

MILK — IT'S GOT THE LOT!

A cow is milked for the first seven months of her nine month pregnancy and the cycle recommences shortly after each birth, ensuring milk contains many biologically active molecules.

MILK IS A HORMONE COCKTAIL

In a typical glass of milk or bite of cheese, there are 35 hormones and growth factors, including IGF-1, oestrogen and progesterone, adrenal, pituitary, hypothalamic and other hormones.

75-90
per cent of milk
in the UK is from
pregnant
cows

IGF WO? NOT?

IGF-1 stands for insulin-like growth factor-1. It is a growth hormone that controls growth and development in both cows and people but each species has very different rates of growth. IGF-1 in cow's milk makes us produce more of our own IGF-1. Even small increases in our levels of IGF-1 increase the risk of several common cancers, including breast, prostate, lung and colon.

Higher intakes of milk and dairy products are linked to raised levels of IGF-1 (Malekinejad and Rezabakhsh, 2015). For example,

increasing cow's milk intake from 200 to 600ml a day produced a 30 per cent increase in IGF-1 in young boys (Hoppe *et al.*, 2004).

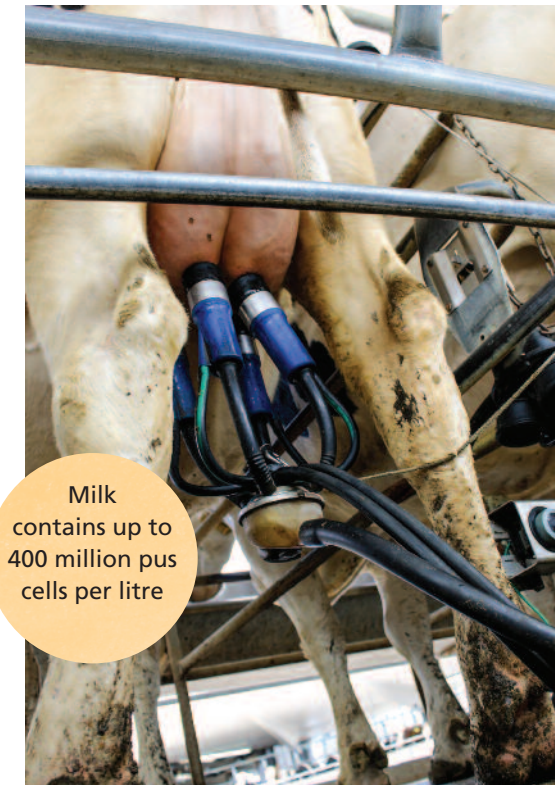
Whereas vegetable and fruit consumption, particularly tomatoes, are linked to lower levels of IGF-1. Not surprising then that vegans have lower levels of IGF-1 circulating in the blood (Allen *et al.*, 2000; Allen *et al.*, 2002).

The research is clear – cow's milk and dairy products increase levels of IGF-1, which in turn increase the risk of many cancers (Butler, 2014).

PUS IN MILK

Another undesirable in milk is pus (yes, that creamy-green stuff that oozes out of infections)! Milk containing up to 400 million pus cells per litre is legally allowed to be sold for human consumption – even higher levels in goat's milk. Why so much? Because modern, intensive dairy farming ensures that 30 per cent of British dairy cows have mastitis – a painful infection of the udders – at any given time. Pus is a product of the cow's almost constant fight against bacterial invasion and some of it finds its way into her milk.

Next are some of the health problems linked to dairy foods together with a sample of the scientific research that unearthed them.



Milk contains up to 400 million pus cells per litre

Health

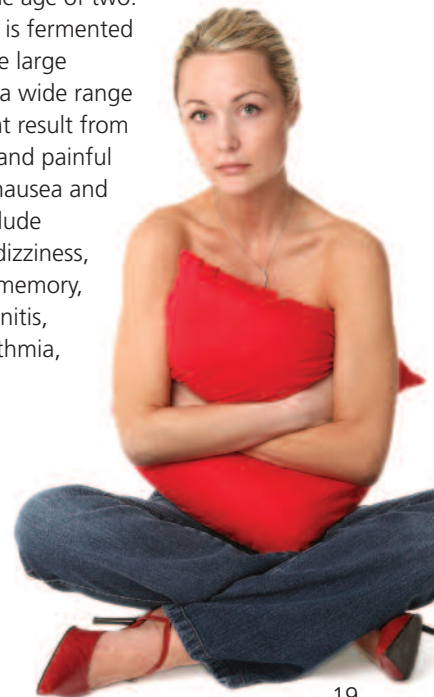
LACTOSE INTOLERANCE

Many people avoid cow's milk and dairy products because they are lactose intolerant – a condition which directly stems from drinking milk after weaning, contrary to what nature intended.

The main sugar in all mammalian milk is called lactose and for it to be digested, it must be broken down to its component parts, glucose and galactose. This is done in the small intestine by the enzyme lactase. Glucose can then be used to make energy. Although babies and toddlers have lactase available to digest lactose, it is lost in most people after weaning, commonly around the age of two.

In the absence of lactase, lactose is fermented by bacteria and bubbles away in the large intestine, producing hydrogen and a wide range of potential poisons. Symptoms that result from it can include diarrhoea, a bloated and painful stomach and, on some occasions, nausea and vomiting. Other symptoms may include muscle and joint pain, headaches, dizziness, lethargy, difficulty with short-term memory, mouth ulcers, allergies (eczema, rhinitis, sinusitis and asthma), cardiac arrhythmia, sore throat, increased frequency of urination, acne and depression (Lomer *et al.*, 2008).

In global terms, lactose intolerance is extremely common as three quarters of the world's population do not produce lactase after infancy. Race plays a big part in this.



Incidence of lactose intolerance

Vietnamese	100%
Thais	100%
Central Africans (mainly Bantu)	95%
Chinese (Hans)	92%
Japanese	85%
Arabs	78%
Egyptians (north)	73%
Turkish	71%
Indians (southern)	67%
African Americans	65%
Greeks (mainland)	53%
Northern Italians	50%
Native Americans	50%
Polish	37%
French	32%
Indians (northern)	27%
American Whites	22%
Spanish	15%
British	6%

(Source: Flatz, G. Genetics of Lactose Intolerance in Humans. Advances in Human Genetics. 1987)

You may wonder why some races have relatively little lactose intolerance – it is because of a random genetic mutation. However, being able to tolerate lactose doesn't make dairy good for you!

Lactose intolerance is unpleasant, sometimes in the extreme, but it is not a killer. But dairy is also linked to more sinister diseases.

THE BIG C: DIET AND CANCER

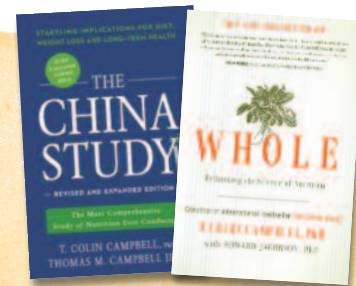
Professor T Colin Campbell has been at the forefront of nutrition research for decades. His legacy, *The China Study*, is the most comprehensive study of health and nutrition ever conducted. Colin Campbell is Jacob Gould Professor Emeritus of Nutritional Biochemistry at Cornell University, he has received more than 70 grant-years of research funding and has authored more than 300 scientific papers. *The China Study* was the culmination of a 20 year partnership between Cornell University, Oxford University and the Chinese Academy of Preventive Medicine.

Why am I telling you so much about the Prof? Because his family background was in dairy farming and he grew up convinced that dairy was essential for good health yet it is his extensive research that leads him to believe that casein actually promotes cancer.

What is casein?
It is the main protein in cow's milk

WANT TO KNOW MORE?

Read an excellent book on the impact of animal products on our health: *The China Study* by T Colin Campbell and Thomas M Campbell (updated 2016). Also its fascinating follow up, *Whole*, by T Colin Campbell and Howard Jacobson, about the impact of diet on health and why the establishment ignores and twists the truth! Available from vivashop.org.uk/collections/books.



THREE STAGES OF CANCER

Cancer develops in three stages: initiation, promotion and progression. Professor Campbell's analogy in his book, *The China Study*, is spot on so I'll steal it. He says that the cancer process is roughly like planting a lawn. Initiation is when you put the seeds in the soil, promotion is when the grass starts to grow and progression is when the grass gets completely out of control, invading the driveway, borders and pavement.

It is carcinogens (cancer-causing agents) that 'implant' the seeds in the soil in the first place and these include tobacco smoke and alcohol but are mostly the by-products of industrial processes. They mutate normal cells into cancer-prone cells by damaging their DNA.

A wholefood vegan diet, brimming with fresh fruit and vegetables, wholegrains, pulses, nuts and seeds may significantly protect against the DNA damage by carcinogens – so diet is vital. For example, it is known from a study (Riso *et al*, 2010) that broccoli directly protects the lung cells of smokers (see Dr Michael Greger's short film at <http://nutritionfacts.org/video/dna-protection-from-broccoli>).

There are also studies showing that specific foods help prevent or repair DNA damage that can cause cancer – including apples, almonds, grapes, carob, Brussels sprouts, black pepper and soya (edamame, tofu and tempeh). (See <http://nutritionfacts.org/topics/dna-damage>.) So, certain plants in our diet can stop the initial cancer seeds being created.

If a cell is damaged, however, and it passes that DNA damage to its daughter cells, the process is irreversible. Daughter cells and their progeny will forever be genetically changed, giving rise to a potential for cancer – but the key word here is 'potential'. The next process – promotion – is not inevitable. The grass seeds are ready to germinate but they need the right conditions in which to grow. They need water, nutrients, sunlight... otherwise they lie dormant. Cancer-prone cells also need certain conditions to multiply but promotion is reversible. This is really quite profound and depends upon whether early cancer growth is given the right conditions in which to prosper.

This is why diet is so important. There are dietary factors (known as promoters) which feed cancer growth and there are others (anti-promoters) which slow cancer growth (Campbell *et al*, 2016).

Campbell's studies led him to believe that casein from cow's milk aggressively promotes cancer but, equally significantly, vegetable proteins do not, even at high levels.

Campbell widened his studies and found that nutrients were more important in the development of cancer than the dose of the initiating carcinogen which started the process.

Campbell and his colleagues were then given a rare opportunity to study the role of nutrition, lifestyle and disease on people's health in the most comprehensive manner ever undertaken in the history of medicine. They were onto *The China Study*.



VEGETABLES THAT MAY STOP CANCER GROWTH

A landmark study pitted 34 common vegetables against eight different types of human cancer cells (breast, adult brain tumours, kidney, lung, childhood brain tumours, pancreatic, prostate and stomach). The study measured cancer cell proliferation in a petri dish under lab conditions and observed what happened if extracts from different vegetables were added (Boivin *et al*, 2009). Certain veg cut cancer growth rates; some stopped cancer growth completely; others had a weak effect, including carrots, potatoes, tomatoes and lettuce.

The same team found that juice from berries inhibited the proliferation of five cancer cell lines (Boivin *et al*, 2007). Blueberry, blackcurrant, raspberry, gooseberry and cranberry exhibited the strongest inhibition, whereas strawberry and blackberry had little or no inhibitory effect on the cancer cell lines tested.

One thing is clear, we need to eat a wide variety of fruit and vegetables as some will work against one type of cancer but not another. For example, radishes did nothing to slow pancreatic cancer but eliminated stomach cancer cell growth. Orange bell peppers had no impact on stomach cancer but cut prostate cancer cell growth by 75 per cent.

ALL ROUND CHAMPIONS AGAINST CANCER

The most powerful anti-cancer food of all: **Garlic**



Other winners were the cruciferous vegetables, including:

- | | | |
|--------------------|-----------------|--------------------|
| ● Broccoli | ● Cabbage | ● Green (immature) |
| ● Brussels sprouts | ● Curly cabbage | onions* |
| ● Kale | ● Cauliflower | ● Leeks |

All of these inhibited or stopped the proliferation of all tested cancer cell lines.

* Green onions are often mixed up with spring onions. Green onions are sold in bunches and have long, green leaves and slight bulbs. Spring onions look very similar but have a bigger white bulb. Brown onions (the ones we mostly use) are also powerful but not against all the cancers tested. The solution is – eat onions – all types!

THE CHINA STUDY

The China Study is a monumental look at 6,500 adults across 65 counties of China. It analysed the blood, urine, diet and food intake of these people. China was chosen because 87 per cent of the population is from the same ethnic group, the Han people, and were from rural and semi-rural China where they had lived and eaten food from the same area most of their lives. This massively limited the chance of differences in disease susceptibility being due to genetics and concentrated on the impact of diet and lifestyle on disease.

Nutrient levels varied considerably from county to county and two distinct groups of diseases emerged: diseases of affluence and diseases of poverty. There were marked patterns between each group. For example, a region that had high rates of breast cancer also had high rates of heart disease but not pneumonia.

In rural China, affluent people tended to suffer from certain cancers, along with diabetes and heart disease. People with low nutrition bore other diseases such as pneumonia, peptic ulcers and parasitic diseases but not cancer or heart disease. You might conclude that's because poor people die young, before they develop 'Western' diseases but not so, say the scientists in *The China Study*. All results were 'age-standardised' (age was taken into



account) so the result was clear – people with a low intake of nutrients were getting less, or no, ‘Western’ diseases.

The next important question was, which nutrients, when eaten in higher levels, were causing ‘Western’ diseases?

WHICH NUTRIENTS CAUSE DISEASE?

In a nutshell, *The China Study* showed clearly that animal protein and animal fat cause diseases of affluence – including many cancers, heart disease and diabetes; whilst plant nutrients such as fibre, antioxidants, vegetable protein and complex carbohydrates protect us from disease.

CHINESE EAT MORE BUT WEIGH LESS!

A fascinating fact emerges from this study – although the average calorie intake of the least active Chinese person was 30 per cent HIGHER than the average American, body weight is one-fifth lower!

The China Study shows that eating diets high in animal protein and animal fat makes us more likely to store calories as body fat whereas diets low in animal protein and fat make us more likely to burn calories as heat rather than storing them as body fat. (Campbell *et al*, 2016.)

Furthermore, the highly respected EPIC*-PANACEA study shows that even when meat-eaters and vegans eat the same number of calories, meat-eaters gain more weight (Vergnaud *et al*, 2010).

They also found that people who eat lots of protein, at the expense of carbohydrate (containing fibre), gain more weight too (Vergnaud *et al*, 2013). Both results paint the theory behind the Atkins diet in a dim light!

*EPIC is the European Prospective Investigation into Cancer and Nutrition.



THE VILLAINS

The biggest culprits in the British diet which contain the most animal protein and saturated (bad) fat and cause ‘diseases of affluence’ are:

- Cow's milk and milk products – especially cheese, cream, butter
- Meat and meat products – including red and white meats, sausages, meat pies



THE HEROES

The China Study (and many others) has repeatedly shown that we need a variety of whole plant foods in our diet. Foods that actively protect our health and fight disease are:

- Fruit
- Vegetables
- Mushrooms
- Pulses – peas, beans, lentils
- Nuts
- Seeds
- Wholegrains

(See page 89 for what you need to eat each day for good health!)



Dairy and cancer

The figures for cancer in the UK are astonishingly high. One in two of us (born after 1960) will be diagnosed with cancer during our lifetime (Ahmed *et al*, 2015).

Diet is crucial in cancer, because:

1 A 'Western diet' can directly cause certain cancers.

A typical 'Western diet', rich in meat and dairy foods, promotes cancer. Just four types – lung, bowel, breast and prostate – account for almost half of all cancer deaths in the UK. The World Cancer Research Fund say that 30-50 per cent of cancers are attributable to environmental and lifestyle factors, including a bad diet (WCRF/AICR, 2018). For some cancers – breast, bowel and prostate – the harmful effects of a poor diet may be considerably higher (Willett, 2000).

2 But no matter what the initial cause of cancer, our diet can help turn the damaged cells on or off.

The *China Study* clearly illustrates this. Liver cancer rates are very high in rural China, the primary culprit being the hepatitis B virus (HBV). But not everyone infected with the virus develops cancer and Professor Campbell gives diet as the main reason. People on high animal protein and animal fat diets, which triggered high cholesterol levels, had highly significantly increased levels of liver cancer (Campbell *et al*, 2016). This accords with decades of work showing how animal protein is a friend of cancer progression.

The nutritional effects on the cancers I've mentioned are virtually the same for all other cancers.

Breast cancer is the most common cancer in the UK. One in eight women will develop it at some point in their lives. In the UK, in 2015, more than 55,000 women were diagnosed with breast cancer and rates have doubled since the early 1970s (Office for National Statistics, 2015).

Breast cancer rates, however, vary widely between countries, with richer nations suffering more than poorer ones. Compared to

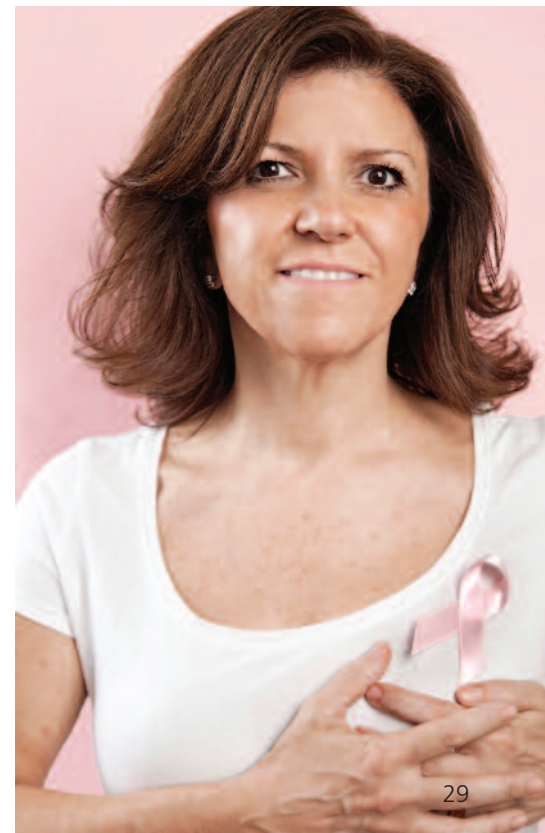
Northern Europeans, Jamaican and Puerto Rican women are almost half as likely to get breast cancer while in rural China, women are six times less likely to develop it.

BREAST CANCER: THE MILK LINK

BAD FATS AND BREAST CANCER

A wealth of evidence showing how diet impacts on breast cancer is accumulating. Common themes occur in the scientific literature; a diet rich in dairy and meat is linked to an increased risk of breast cancer while whole plant food, vegan diets are linked to a lower risk.

A major review of studies on diet and breast cancer published in the journal *Anticancer Research* found that diets high in saturated fats (dairy, red and processed meat and eggs), added sugars, fried foods and refined grains increase the risk of breast cancer whilst diets based on fruit and vegetables, pulses (peas, beans and lentils), wholegrains, nuts and seeds lower the risk by up to 46 per cent (Dandamudi *et al*, 2018).



The landmark study on page 24 found that vegetables linked with stopping or slowing breast cancer cell growth in a petri dish include (most powerful first) garlic, leeks, green onions, Brussels sprouts, cauliflower, cabbage, broccoli, radish, kale, brown onions, green beans, red cabbage, asparagus, spinach, beetroot, potatoes, jalapeno peppers, radicchio, cucumber and orange bell peppers (Boivin, 2009).

In a study involving over 90,000 premenopausal women, researchers from Harvard Medical School confirmed that animal fat intake in early adulthood was associated with an increased risk of breast cancer. Red meat and high-fat dairy foods, such as whole milk, cream, ice-cream, butter, cream cheese and cheese, were the main sources of animal fat in this group of relatively young women (Cho *et al*, 2003).

Importantly, not all fats are equal. This research did not find a link between vegetable fat and breast cancer, the increased risk being linked only with animal fat.

Hormones in cow's milk and dairy products are also implicated. Two thirds of UK milk is taken from pregnant cows with the remainder coming from

Oestrogen levels are a critical determinant of breast cancer risk and directly participate in the cancer process (Campbell *et al*, 2016). Oestrogens are found in meat and eggs but major sources are cow's milk and dairy products, which account for 60 to 80 per cent of the oestrogens consumed (Ganmaa *et al*, 2012).



cows that have recently given birth – when hormone levels are sky-high. Additionally, drinking cow's milk raises levels of the growth hormone IGF-1 in humans and higher levels are linked to cancers of the colon, prostate and breast (Shanmugalingam *et al*, 2016).

The sad truth is that most women are not aware of the strong evidence showing that saturated fat, and oestrogen in our diet can affect our risk of developing breast cancer. Nor are they aware that only five to 10 per cent of all breast cancers are linked to an inherited breast cancer gene. It follows that the vast majority of cancers (90-95 per cent)

are not caused by abnormal genes. Nearly a third of all breast cancer cases are attributed to avoidable risk factors – alcohol, high meat and dairy consumption and lack of exercise – and a low intake of whole plant foods.

A word on soya – a review of studies on the safety of soya highlighted how soya can be helpful for breast cancer patients and may improve treatment outcomes (Rizzo *et al*, 2018). This adds to a growing body of evidence that supports soya as safe and healthy.

A FIGHTING CHANCE BY VIVA!HEALTH. £1.90

An easy-to-read, colourful guide that summarises the impact of diet on breast cancer. It provides vital information on which foods can help fight cancer. Includes a seven day meal plan.
vivahealth.org.uk/breast-cancer



PROSTATE CANCER: A NOT-SO-HARD NUT TO CRACK

The prostate is a male reproductive gland about the size of a walnut which sits behind the bladder. It produces some of the fluid that helps sperm on its mission to fertilise a woman's egg.

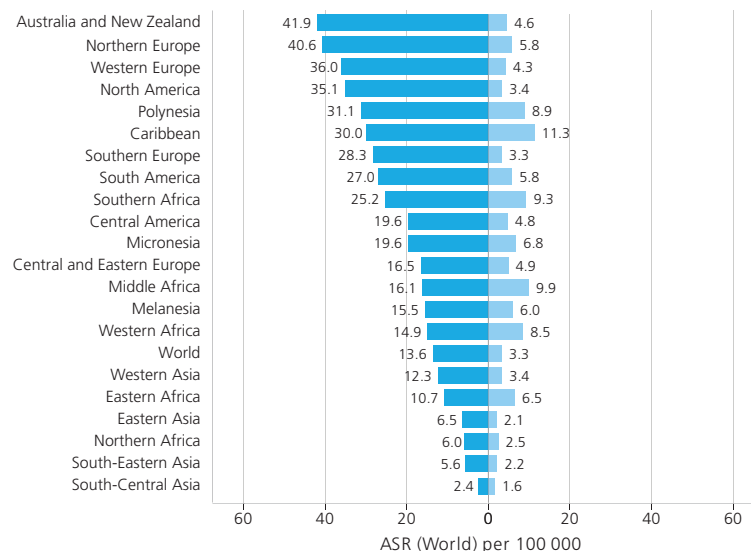
For such a little thing, it certainly causes a lot of problems. Prostate cancer is the second most common cause of cancer death in UK men, after lung cancer (Cancer Research UK, 2018). About one in eight men will develop it at some point in their lives, with over a half of them being 70 or over.

There are many different factors that influence the development of prostate cancer and experts think that less than 10 per cent are linked to inherited genes (Macmillan Cancer Support, 2018). It means that 90 per cent plus of prostate cancers are caused by environmental and/or lifestyle factors. Research suggests that obesity, animal-based diets and a lack of exercise may be linked to prostate cancer. Again, a diet high in animal fats may increase your risk. Foods with high levels include red meat (beef, lamb and pork), eggs and dairy produce, including butter, whole milk, cheese and cream.

As with breast cancer, the highest rates of prostate cancer occur in the developed world, the lowest rates being in Africa and Asia.



Age standardised (World) incidence and mortality rates, prostate



Source: World Health Organisation, 2018.

A global look at the problem confirms that there are clear links with diet; with increasing rates following the worldwide spread towards a Westernised diet, with high intakes of calories, animal fat and meat and a low intake of fibre (Gathirua-Mwangi *et al*, 2014).

Dairy products are also strongly linked to prostate cancer and this was first discovered in the 1980s (Snowdon, 1988). Since then, other studies have identified the components of milk which are probably responsible and these include oestrogen, the growth hormone IGF-1, calcium from milk and dairy protein (Butler, 2014).

For example, an important European Prospective Investigation into Cancer and Nutrition (EPIC) study found that a 35g per day increase in consumption of dairy was associated with increasing the risk of prostate cancer by one third. They also found that calcium from dairy products was positively associated with risk, but not calcium from other foods (Allen *et al*, 2008).

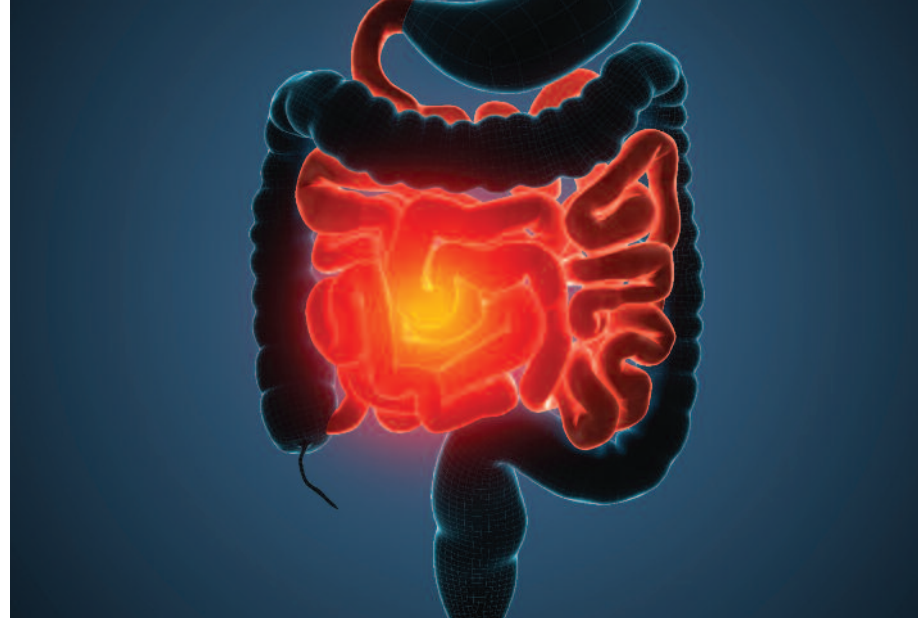
IGF-1 concentration is significantly associated with an increased risk of prostate cancer. Men with higher than normal IGF-1 levels have been shown to increase their risk of advanced stage prostate cancer by five times (Chan, 2002). Our bodies increase their production of IGF-1 when we eat meat and dairy. Scientists suggest that circulating concentrations of IGF-1 in middle to late adulthood are strongly associated with subsequent prostate cancer risk over the relatively long term (Price *et al*, 2012).

In a more recent study looking at adult milk drinkers, increased dairy consumption is shown to be a major dietary risk factor for the development of prostate cancer. It showed how bioactive molecules in cow's milk initiate a signalling pathway and that this, along with constant exposure to cow's milk oestrogens, may explain the link between high dairy consumption and increased risk of prostate cancer in Westernised societies (Melnik *et al*, 2012).

Researchers at Loma Linda University in California found a 35 per cent reduction in prostate cancer risk in men who followed a vegan diet (Tantamango-Bartley *et al*, 2016). Vegan diets exclude dairy and eggs and tend to include more fruit, vegetables, nuts, wholegrains and pulses.

Increasing your intake of tomatoes (including tomato paste, tinned and cooked tomatoes), beans, lentils, peas, raisins, dates and other dried fruit (Mills, 1989) and flaxseed significantly reduces the risk of prostate cancer. Vegetables linked with stopping or slowing prostate cancer cell growth in a petri dish include (most powerful first) garlic, Brussels sprouts, green onions, leek, broccoli, cauliflower, kale, brown onions, cabbage, beetroot, jalapeno, red cabbage, celery, orange bell peppers, spinach, cucumber, radicchio, asparagus, fennel bulb, radish, aubergine, potatoes, tomatoes and bok choy (Boivin, 2009).

A review of 25 studies on the effect of diet on prostate cancer in real-life cases (rather than in a petri dish) found that a vegan diet may slow prostate cancer growth and improve survival (Berkow *et al*, 2007). They found that disease progression was higher in men who ate lots of saturated fat and slower in those eating lycopene-containing tomatoes and flaxseed.



BOWEL CANCER: GETTING TO THE BOTTOM OF IT

Bowel cancer is the fourth most common cancer in the UK and the second most common cause of cancer death – accounting for 10 per cent of all cancer deaths. Every 15 minutes in the UK someone is diagnosed with it. One in 14 UK males and one in 19 UK females will be diagnosed with bowel cancer in their lifetime.

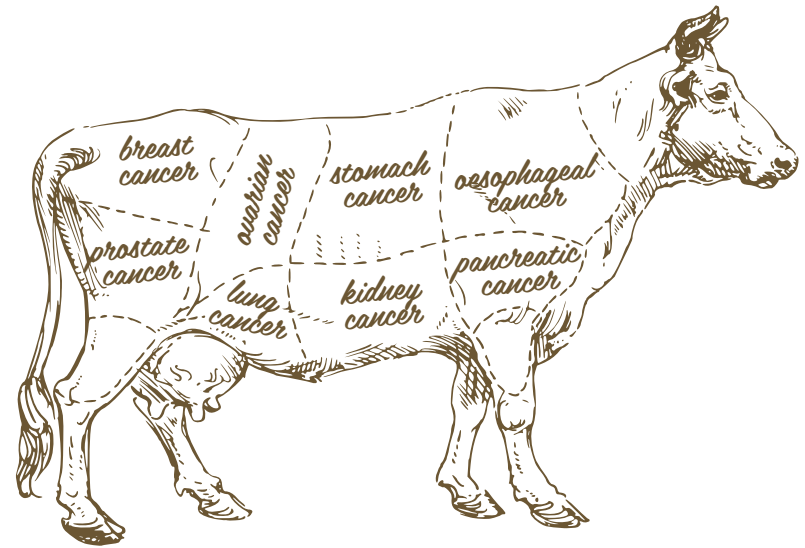
As with breast and prostate cancers, the rates of bowel cancers vary wildly across the world. For example, rates are high in the UK and USA but almost non-existent in Bangladesh. Migrant studies have shown that as people move from a low-cancer risk area to a high risk area, they develop the same risk of getting bowel cancer as their host country within two generations. In other words, in most cases this is not an inherited 'genetic' disease. It is now well established that causes include obesity, alcohol, smoking and poor diet.

BEWARE MEAT AND DAIRY

Even the NHS, which is not particularly progressive regarding dietary advice, says: "A large body of evidence suggests a diet high in red and processed meat can increase your risk of developing bowel cancer" (NHS Choices, 2016).

In November 2007, The World Cancer Research Fund launched the report *Food, Nutrition, Physical Activity, and the Prevention of Cancer: a Global Perspective*. It was the most comprehensive report to date published on the link between cancer and lifestyle (WCRF/AICR, 2007). The report warned that eating 150g of processed meat a day (the equivalent of two sausages and three rashers of bacon) increases

bowel cancer risk by 63 per cent and that 50g a day (one sausage) increases the risk by about 20 per cent. The WCRF's more recent report, published in 2018, strengthens previous warnings about meat (WCRF/AICR, 2018). Their current cancer prevention recommendation is to eat no more than moderate amounts of red meat, such as beef, pork and lamb, and eat little, if any, processed meat. They say there is strong evidence that consumption of either red or processed meat are both causes of bowel cancer.



Red and processed meats may cause bowel cancer because the type of iron they contain – haem iron, mainly from the animal's blood – can cause changes in cells that lead to cancer (Bastide *et al*, 2011). Other nasties found in red and processed meats are N-nitroso compounds, heterocyclic amines and polycyclic aromatic hydrocarbons, which may directly mutate cells in the large bowel, leading to cancer (WCRF/AICR, 2018a). The iron found in plant foods is non-haem iron, which does not have the same detrimental effects as haem iron.

As with breast and prostate cancers, there are mounting concerns that consuming cow's milk and dairy products raises levels of the growth hormone, IGF-1 in our blood – and we know that higher IGF-1 levels may cause bowel cancer. In fact, Professor Campbell states: "insulin-like growth factor-1 is turning out to be a predictor of cancer just as cholesterol is a predictor for heart disease" (Campbell *et al*, 2016).

In a healthy person, IGF-1 efficiently manages the birth and removal of cells. However, under unhealthy conditions, IGF-1 more vigorously increases the birth and growth of new cells while stopping the removal of old cells, both of which favour the development of cancer (Campbell *et al*, 2016).

OBESITY: AN EXPANDING EPIDEMIC

Research by the American Cancer Society on 75,000 people for over a decade found that the one food most associated with weight gain was meat (Kahn *et al*, 1991).

This is supported by the UK National Diet and Nutrition Survey, which reports that meat and meat products are the leading source of fat in most people's diets. The second leading source is dairy and dairy products – with hard cheeses, cream, butter and milk chocolate being significant sources of saturated fats.

An impressively large study of European vegans (Spencer *et al*, 2003) compared over 1,000 of them to tens of thousands of meat-eaters. On average the meat-eaters were significantly heavier than the vegans.

Less than two per cent of vegans were obese compared to one-fifth of English adults. And yet, vegans ate as many calories as the meat-eaters.

Vegans who consume a wholefood diet tend to stabilise at their natural, healthy weight.

Meat and dairy products contribute to obesity.

And the evidence that being overweight increases the risk of bowel cancer is stronger now than ever before. Just over one in 10 cases of bowel cancer in the UK are caused by overweight and obesity (Cancer Research UK, 2018).

Scientists believe that after not smoking, maintaining a healthy weight is the most important thing you can do for cancer prevention.

A vegan diet helps you slim without calorie counting!

See the *V Plan Diet* by Viva!Health at vivahealth.org.uk/guides



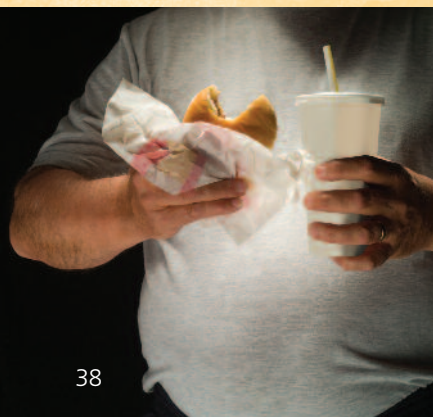
PLANTS PROTECT

It has been known for decades that a wholegrain, vegan diet containing lots of fruit and vegetables (and therefore fibre) helps protect us from bowel cancer. Two large-scale studies published in *The Lancet* examined the relationship between diet and bowel cancer and both confirmed that as dietary fibre intake increases, the risk of bowel cancer decreases.

The first study concluded that dietary fibre, particularly from grains such as wholemeal bread, wholegrain pasta, porridge and other oat cereals, muesli, brown rice and fruits, was associated with a decreased risk of bowel cancer (Peters *et al*, 2003). In the second study – and this one was gigantic – researchers from the European Prospective Investigation into Cancer and Nutrition (EPIC) looked at the association between dietary fibre intake and the incidence of bowel cancer in 519,978 individuals aged between 25 and 70 years-old, recruited from 10 different European countries (Bingham *et al*, 2003a).

The evidence that processed meat (smoked meat, ham, bacon, sausages, pâté and tinned meat) is a cause of bowel cancer is so strong that the World Cancer Research Fund recommends people should avoid eating it altogether. They also state that to help avoid cancer generally: 'Eat mostly foods of plant origin.'

Source: wcrf.org/dietandcancer/recommendations/limit-red-processed-meat



Again, people with the highest fibre intake (35g/day) had a 40 per cent lower risk of colorectal cancer compared to those with the lowest intake (15g/day).

EPIC continues to study bowel cancer and the latest findings amongst the almost half a million participants (Murphy *et al*, 2012) confirmed again that dietary fibre protects us against bowel cancer.

Including more fibre in a meaty diet is not the answer. A study comparing the diets of African Americans and Native Africans found that their fibre intake was the same, but African Americans ate more protein, fat, meat, saturated fat and cholesterol, suggesting the higher bowel cancer rate in African Americans is linked to their higher intake of animal foods (O'Keefe *et al*, 2007).

In the UK, most people do not eat enough fibre – the average intake is 19g/day when the NHS recommends a minimum of 30g/day. The well-respected Washington-based group, Physicians Committee for Responsible Medicine, recommend 40g/day.

You don't need to measure the amount of fibre you're getting, just follow the chart on page 89, eat a variety of healthy wholefoods and you won't go wrong.

There are many other chronic diseases linked to dairy consumption and here are a few to illustrate how our diet can affect how we feel. (For the full shooting match, read the excellent *White Lies* report at

scarydairy.org.uk/whiteliesreport)

In countries with low intakes of dietary fibre, a doubling of fibre intake from foods such as wholegrains, fruit and vegetables could reduce the risk of bowel cancer by a whopping 40 per cent (Bingham *et al*, 2003a).



ACNE AND MILK — SPOT ON!

American actor, activist and playwright Woody Harrelson says: "I was about 24 years old and I had tons of acne and mucus. I met some random girl on a bus who told me to quit dairy and all those symptoms would go away in three days". He followed her advice, found she was right and has never looked back!

Guess what? The growth hormone, IGF-1 found in milk and milk products and linked to cancer, is also a culprit in causing acne. At least two-thirds of cow's milk in the UK is taken from pregnant cows, at a time when the hormone content increases substantially (see page 17).

Increased insulin needed to digest milk products, together with IGF-1, makes your skin cells more sensitive to androgens. These are steroid hormones present in dairy products and which encourage more and faster production of oil (sebum) and skin cells. The result is oily skin and clogged pores where bacteria can breed.

It's interesting that bodybuilders who use steroid hormones are more prone to acne as are athletes who use whey-based supplements



in shakes and the like. Dairy affects hormone levels and therefore the skin. Case studies show that some young athletes lost their acne when taken off whey supplements but it returned when they went back to using them (Silverburg, 2012).

Two large studies looked at nine to 15 year-old children, including over 6,000 girls (Adebamowo *et al*, 2006) and more than 4,000 boys (Adebamowo *et al*, 2008). For girls, there was a strong link between acne severity and all types of dairy products – severe acne was 20 per cent more likely if they consumed two or more servings of milk per day compared to girls who consumed less than one serving per week.

For boys, the association was significant for all their milk intake but also for skimmed milk alone – 16 per cent more likely to have severe acne on two or more servings of milk per day compared to boys who consumed less than one serving per week.

A more recent study showed that severe acne increased with rising milk consumption – with more than three servings a week (Di Landro *et al*, 2012). And an extensive review of all studies examining the relationship between diet and acne revealed that no other food group was consistently linked to acne but dairy (Burris *et al*, 2013).

The research is very clear – dairy is the main offender where acne is concerned, closely followed by sugary and processed food. A vegan diet high in fruit and vegetables, wholegrains, pulses, nuts and seeds, on the other hand, is best for your skin. Oh, and research shows that vegan chocolate (non-dairy) is *not* linked to acne!



DIABETES — DAIRY'S TOLL

Sadly, diabetes is spiralling out of control. There are 3.7 million diabetics in the UK (Diabetes UK, 2017a) with 400 new cases every day. The global rise is astonishing. In 1980, 108 million people worldwide had diabetes but by 2014 this figure leapt to 422 million people (World Health Organisation, 2017)! Diabetes occurs more in cultures consuming diets high in animal fat. As plant intake increases and saturated animal fat intake decreases from country to country, the number of deaths from type 2 diabetes plummets from 20.4 to 2.9 people per 100,000 (Campbell *et al*, 2016).

Diabetes is a chronic disease caused by too much sugar (glucose) in the blood. Blood sugar levels rise when there is not enough insulin in the blood, or the insulin does not work properly. Insulin is a vital hormone secreted by the pancreas and it regulates blood sugar levels by encouraging our cells to take glucose out of our blood to make energy.

When things go wrong, high levels of glucose in the blood can cause damage to the nerves and blood vessels. Without treatment,



diabetes can lead to long-term health problems, including kidney failure, gangrene, sensory loss, ulceration, blindness, cardiovascular disease and stroke.

Type 1 (insulin-dependent) diabetes occurs when the body produces little or no insulin. It is an auto-immune disease where the body attacks its own insulin-producing cells in the pancreas and requires daily administration of insulin.

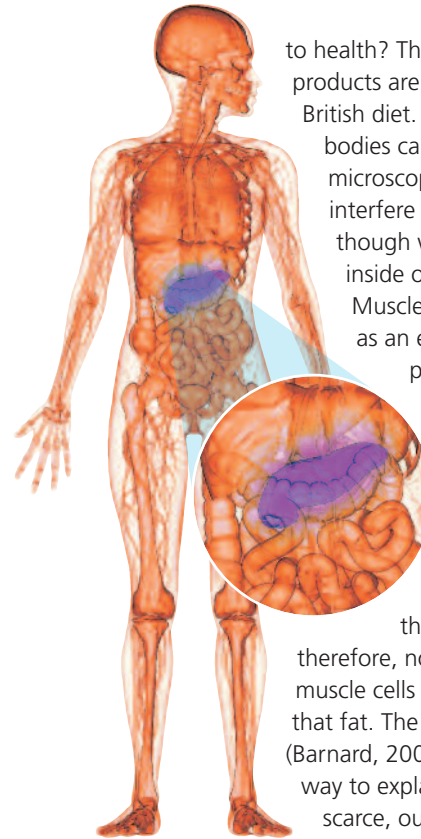
Type 2 diabetes occurs either when the body cannot use the insulin it produces or it does not produce enough. Ninety per cent of UK cases of diabetes are type 2 (Diabetes UK, 2017b) and these are largely the result of unhealthy diets high in saturated animal fat and cholesterol, physical inactivity and excess body weight, especially around the middle.

MEAT AND DAIRY DAMAGE IN DIABETES

Meat and dairy are a major cause of diabetes. A long-term study followed the eating habits of people for 17 years. It showed that eating just one serving of meat per week significantly increases the risk of diabetes. People following a low-meat diet had a 74 per cent increase in the risk of type 2 diabetes compared to vegetarians (Vang *et al*, 2008). Some of this difference was due to obesity and/or weight gain in the meat-eating group but even after allowing for this, meat itself remained an important cause of the disease.

Another study following more than 200,000 people for more than 20 years revealed that people whose diets were almost entirely vegan and based on healthy foods had as much as 50 per cent lower risk of developing diabetes compared to the rest of the population (Satija *et al*, 2016).

The big question is, why? What makes animal products so damaging



to health? The answer is simple – fat! Meat and dairy products are the major source of saturated fats in the British diet. Several studies reveal that when our bodies cannot cope with all the fats we're eating, microscopic drops of it accumulate in our cells and interfere with their ability to react to insulin. Even though we might produce enough insulin, the fat inside our cells blocks the necessary reactions. Muscle cells normally store small amounts of fat as an energy reserve but, in insulin-resistant people, fat can build up to levels 80 per cent higher than in healthy people. Slim people are not necessarily exempt as it takes years for diabetes and other symptoms to develop.

It doesn't end here. An abundance of fat in the bloodstream also turns off some of those genes that normally help the body to burn fat! A high-fat diet, therefore, not only causes fat accumulation in the muscle cells but also slows down its ability to burn that fat. The result is an inability to respond to insulin (Barnard, 2007). Our evolutionary history may go some way to explaining this paradox. When food was scarce, our ancestors developed special mechanisms to store fat in their bodies when they

had the opportunity – it was vital for their survival. We live in a much different world now but our bodies are still ready to store fat at any time if we provide it for them. And boy, do we provide it for them!

The common diet in many countries, including the UK, is high in fat, animal products and sugary foods and low in plant wholefoods such as fruit and vegetables, pulses and wholegrains. Not only is this responsible for ever-increasing numbers of overweight or obese people but it also increases the risk of diabetes and cardiovascular disease.

LOW-FAT VEGAN DIETS REVERSE TYPE 2 DIABETES

It is well-established that switching to a vegan diet can yield remarkable results in reversing type 2 diabetes.

In one of the first groundbreaking studies, 197 men with type 2 diabetes switched to a low-fat, vegan diet and after just three weeks, 140 of them were able to discontinue their medication! (Barnard *et al*, 1994).

Several studies followed, each of them testing the effects of a vegan, low-fat diet that emphasises foods with a low glycaemic index (they release sugars slowly) and all of them came to the same conclusion – that this type of diet is more effective than any other diet and even some medication (Charvatova, 2011).

This is great news as it means we can all take steps to prevent or reverse type 2 diabetes. Viva!Health has developed the groundbreaking D-Diet which does just that by detailing what a wholefood vegan diet should consist of.



Reverse, or protect yourself from, diabetes with Viva!'s groundbreaking, easy-to-read guide, *The Big D – Defeating Diabetes with the D-Diet*, £2.90. Includes a seven-day meal plan, recipes and practical shopping tips. vivashop.org.uk/diabetes-guide

Or for our referenced report, vivashop.org.uk/diabetes-report

BASIC PRINCIPLES OF VIVA'S D-DIET

1st principle: no to all animal products

By rejecting all animal products, such as meat, fish, dairy and eggs, you will avoid eating substantial amounts of fat and your cholesterol intake will, literally, be zero. Even lean white meat and fish contain surprising amounts of fat. For example, 38 per cent of calories from roast chicken and 40 per cent of calories from salmon come from fat. But dairy is really loaded – 75 per cent of calories from Cheshire or Cheddar cheese come from fat.

2nd principle: low fat

Even though vegetable oils are better than animal fats as they contain essential fatty acids, less saturated fat and no cholesterol, it is still important to keep them to a minimum.

Cutting down fat intake is vital for many reasons – to help muscle cells reduce the amount of fat interfering with insulin sensitivity, to improve heart health, to reduce the risk of many degenerative diseases and to promote weight loss.

3rd principle: low GI

Glycaemic index (GI) is a measure of the effects of carbohydrates (sugars and starches) on blood sugar levels. Carbohydrates that break down quickly during digestion and rapidly release glucose have a high GI; those that break down more slowly, have a low GI. It is these latter types of food that are the ones you need.

The D-Diet – a low-fat wholesome vegan diet – is what we should all be eating for greater energy and better health. It not only helps the body to reduce fat stored in its cells, which causes insulin resistance, but also brings about improved blood sugar control, reduces blood cholesterol, helps to induce weight loss without portion restriction, prevents further kidney and nerve damage and helps to lower blood pressure.

The usefulness of a vegan diet was endorsed by the American Diabetes Association in 2010.

See Viva!'s guide for a GI chart, *The Big D – Defeating Diabetes with the D-Diet* (see p46)

TYPE 1 DIABETES AND DAIRY

With type 1 diabetes, our body's immune system's 'soldiers' (T-cells), attack our own pancreatic cells that make insulin. Tragically, this is an incurable and serious disease and most often strikes children aged 10 to 14 years, although there is now a steep rise in under-fives.

Early exposure to cow's milk proteins – in individuals who are genetically susceptible to the disease – has been strongly linked to type 1 diabetes (Kimpimaki *et al*, 2001; Thorsdottir *et al*, 2003). Potential culprits include cow's milk proteins: casein, bovine serum albumin and bovine insulin (Butler, 2014).

It is believed that when these children are fed cow's milk, perhaps in an infant formula, it is only partially digested and fragments cross from the child's intestines into her blood. The immune system responds to these foreign invaders and annihilates them. However – and this is the problem – some of the cow's milk fragments look exactly the same as the cells in the child's pancreas that make insulin. The 'soldier' T-cells set about destroying both the cow's milk proteins and the pancreatic cells, wreaking havoc. The child loses her ability to make insulin for the rest of her life.



HEART DISEASE: MENDING A BROKEN HEART

Every three minutes, someone dies from a heart attack or stroke in the UK (British Heart Foundation, 2018). Heart disease is our biggest killer, with one in four men and one in six women dying from it. Yet heart expert Dr Caldwell B Esselstyn told me: "Heart disease need not exist and if it does, it need not progress. I have an ambitious goal: to annihilate heart disease – to abolish it once and for all. Your arteries at the age of 90 ought to work as efficiently as they did when you were nine."

Dr Esselstyn should know! He was trained as a surgeon at the Cleveland Clinic, USA, and worked at St. George's Hospital, London. He was also a researcher and clinician at the Cleveland Clinic where, over a period of 20 years, he ran the most comprehensive study of its

kind, researching the impact of nutrition on people with advanced heart disease. Despite the usual, aggressive treatment his patients had received – including bypasses and angioplasties – some had been told they had less than a year to live.

The patients ranged in age from 43 to 67 and represented a spectrum of the community – factory and office workers, teachers and company executives. Don Felton is typical of those in the study. His wife, Mackie, used to fry bacon for him every morning and then make gravy from the grease. “I loved it,” Don says, “I ate it for years.”

Don (54) arrived at Dr Esselstyn’s office having been told by his cardiologist that after years of chronic heart trouble and treatment, including a failing double bypass, there was nothing more conventional medicine could do for him. Dr Esselstyn recalls Don walking with a limp as he was in acute pain as a result of the main artery in his leg being fully blocked. Don agreed to go on Dr Esselstyn’s programme.

DR ESSELSTYN'S DIET TO REVERSE HEART DISEASE

The rules in their simplest form are:

- You may not eat anything with a mother or face (no meat, poultry, fish)
- No dairy products
- No oil of any kind – not a drop
- No nuts or avocados

You can eat a wonderful variety of delicious, nutrient dense foods:

- All vegetables (except avocados)
- All pulses – beans, peas, lentils of all kinds
- All wholegrains and products, such as bread and pasta made from them, so long as no added fats
- All fruits

Dr Esselstyn’s patients’ initial responses varied from an enthusiastic, “This is my last hope – I’ll start now,” to, “you must be joking!” However, the proof of the no-fat pudding is in the eating. After three months, Don’s chest pain eased and he no longer had to sleep propped up with pillows to ease his angina. After seven months he could walk without stopping and without pain. A test showed that blood flow in the leg artery that had been blocked was back to normal.

And what of Esselstyn’s other patients? The group began the study with an average blood cholesterol of 246mg/dL (6.4mmol/L) – too high. By changing their diet and using cholesterol-lowering drugs, they reduced their group average to 137mg/dL (3.5mmol/L). This is the most profound drop in cholesterol levels in any such study (Esselstyn, 2007).

In all the patients who had angiograms (an X-ray of the coronary arteries) progression of the disease had stopped and in most cases it had been reversed. Again, the results are stunning and scientific proof of the healing power of food. We can eat ourselves into a state of disease or eat ourselves out of it!

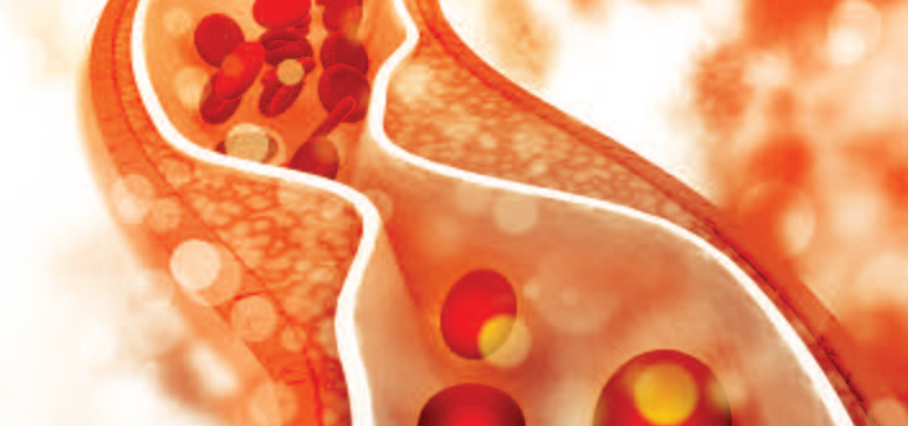
The most far-reaching study on the effect of diet on health, as I’ve mentioned, is the *China Study* (see page 25). It found that cardiovascular disease is nearly non-existent in areas where cholesterol levels are consistently below 150mg/dL (3.9mmol/L) (Campbell *et al*, 2016). In the UK, it is recommended that people reduce their cholesterol levels to



below 5.0mmol/L, however, again the level to avoid heart attacks entirely is 3.9mmol/L.

Another brilliant man is Dr Dean Ornish, Clinical Professor of Medicine at the University of California and best known for his Lifestyle Heart Trial. He investigated the role of a low-fat, high-fibre diet – along with lifestyle changes – in 28 heart disease patients. They followed a low-fat, plant-based diet, including unrestricted amounts of fruits, vegetables and grains. They also practised stress management techniques and exercised regularly. After one year, 82 per cent of the test group experienced regression of their heart disease, including a 91 per cent reduction in the frequency of heart pain compared to 165 per cent increase in the control group. This trial has continued with similar outcomes: no conventional drug or surgery-related therapies compare with these results (Campbell *et al*, 2016).

It is also well-established that plant-based diets lower the risk of high blood pressure from 30 to 50 per cent (Alexander *et al*, 2017). An extensive review of the evidence published in the journal, *Nutrition Reviews*, explains how a plant-based diet high in fruits, vegetables, pulses and nuts lowers blood pressure by a variety of different mechanisms (Berkow *et al*, 2005).



CHOLESTEROL — WHY IS IT A HEARTBREAKER?

Just the size of your fist, your heart pumps oxygen-rich blood around your organs in blood vessels known as arteries and it returns to the heart through veins.

Your heart needs its own blood supply to keep pumping and heart disease occurs when arteries carrying blood for the heart to use (coronary arteries) start to become blocked. Gradually, they become furred with 'plaques' – a thick sludge formed from cholesterol and other substances. This process is known as atherosclerosis.

This furring up results in a smaller diameter blood vessel through which blood has to flow. It can also block nutrients from being delivered to the artery walls, which can then lose their elasticity and result in high blood pressure, increasing the risk of heart disease. This same process can, of course, happen in arteries throughout the body.

With a restricted blood supply, your heart labours to keep beating, causing horrible chest pain from angina. When one of the coronary arteries becomes completely blocked, you are at a greater risk of a heart attack.

80 to 90 per cent of heart disease cases are influenced by our lifestyle – mainly unhealthy diets loaded with 'bad' (mainly meat and dairy) fats, smoking, little exercise and too much booze (WHO, 2017).



There are two main types of cholesterol:

- High density lipoprotein (HDL) is known as 'good' cholesterol because it collects excess cholesterol and carries it from the arteries to the liver for disposal
- Low density lipoprotein (LDL) is referred to as 'bad' cholesterol because if there is an excess in the bloodstream, it is deposited along artery walls.

Cholesterol is solely in animal foods (meat, fish, eggs, dairy and so on) but there is none in any plant foods. Even fat-rich plants such as avocados, nuts and seeds do not contain any cholesterol.

Consuming cholesterol-rich foods can increase the body's levels of cholesterol to some extent but much more problematic is the effect of eating animal protein and saturated animal fats, found in dairy, hard cheeses, cream, ice cream, milk chocolate and butter, red and white meats, fish and eggs as well as coconut and palm oil.

A review of 112 studies, published in the *Journal of the American Heart Association* found that replacing one to two servings of animal protein every day with plant protein (mainly soya, nuts and pulses) reduced cholesterol and could help lower the risk of heart disease and stroke (Li *et al*, 2017).

Manufactured hydrogenated fats in 'junk' foods are also a serious problem.

Animal protein, saturated and hydrogenated fats stimulate the body's own cholesterol production. Vegetable protein tends to have the opposite effect and soya and oats, for example, can dramatically lower cholesterol levels.

As with the other diseases I refer to, heart disease is largely caused by our lifestyle. The World Health Organisation say bluntly 'civilisation kills!' – a massive 80 to 90 per cent of heart disease is influenced by our lifestyle (WHO, 2014). They give the main four causes as: tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol (WHO, 2017).

OSTEOPOROSIS DAIRY DAMNS 'DEM BONES

The myth about people needing calcium from cow's milk is so pervasive that you'd think vegans were boneless blobs, wobbling around the floor!

This is the *crème de la crème* (excuse the pun) of myths from the dairy industry: we, but especially our children, must have cow's milk for strong bones and teeth.

Western nations have been duped into believing that we need to suckle from cows to obtain calcium! When you think about it, the notion is preposterous. After all, how did we develop a healthy skeleton for most of our evolution when we did not drink dairy? And how, today, do the majority of the world's people have strong bones when they don't consume dairy?

The supreme irony is that the disease of weak bones, osteoporosis, is more common in those nations that consume the most dairy products!

Figures from 63 countries show the truth of this, with a huge variation in fracture rates – some countries having 10 times as many fractures as others (Kanis *et al*, 2012). Nations such as the UK, where dairy consumption is high (average 270g of dairy products/day), has one of the highest osteoporosis rates in the world. Nigeria, on the other hand, which eats a diet high in plantains, tubers, wholegrains, vegetables and pulses and where only one per cent of the diet is dairy and less than three

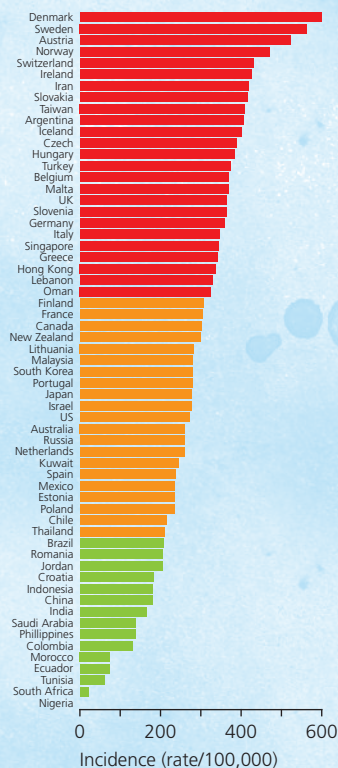


per cent is meat – has almost no cases of osteoporosis (National Bureau of Statistics, Nigeria, 2012).

The results of a 22-year-long study of over 96,000 people confirmed that milk is truly no bone builder (Feskanich *et al*, 2014). The researchers found that men consuming high amounts of milk during adolescence had a higher risk of hip fracture in adulthood. For women, they found no bone-beneficial effect of milk consumption whatsoever.

You may be wondering how Inuit (used to be referred to as Eskimo) people survive? When scientists studied them, one outstanding discovery was that after the age of 40, Inuits had high bone loss and fast progression of osteoporosis. This was attributed to a diet very high in animal protein and phosphorus and low in fresh fruit and vegetables (Mazess *et al*, 1974).

Incidence (rate/100,000)
Age-standardised annual incidence of hip fractures in women (per 100,000) according to country together with the colour codes for risk (high, medium or low (red, orange or green, respectively).



Source: Kanis *et al*, 2012.



ANIMAL PROTEIN AND BONE LOSS

There are copious scientific studies showing that people eating a diet high in dairy products and animal protein have high bone loss. And conversely, that fresh fruit and vegetables protect and strengthen our bones.

A huge analysis of 34 surveys from 16 countries found that 70 per cent of all fractures were linked to eating animal protein (Abelow *et al*, 1992). Not satisfied with that, another scientific team tested the same theory in a seven-year study of 1,035 women. They found that those with diets high in animal protein had almost four times more bone loss – and a 3.7 times higher risk of hip fracture – than women who ate the least amount of animal protein (Sellmeyer *et al*, 2001).

A highly-regarded study of more than 120,000 women lasting 12 years showed that eating more than 95g of animal protein a day significantly increased the risk of forearm fracture (Feskanich *et al*, 1996).

And there's more! A gargantuan study of almost 80,000 women in the USA led by scientists at the Department of Nutrition, Harvard School of Public Health, examined whether by increasing your milk intake you can reduce the risk of fractures. It found that not only does milk not protect bones from fractures but that women drinking two or more glasses of milk a day increased their risk of hip fracture (Feskanich *et al*, 1997).

A more recent study looked at children and the growth of their bones and it concluded that animal foods, particularly meat, had a significant negative effect on bone mass increase (Zhang *et al*, 2010).

And an important review of 58 different scientific papers examining whether high calcium or high dairy intake improves bone health in children was published in the highly esteemed Pediatrics journal. It concluded neither option gives even a modest benefit (Lanou *et al*, 2005). One of the authors of this review, Professor Amy Lanou, PhD, holds a doctorate in human nutrition from Cornell University and her book, *Building Bone Vitality* (Lanou and Castleman, 2009), makes clear that for healthy bones we must:

- Increase fruit and vegetable servings to six to 10 per day
- Avoid or limit protein from animal sources (no meat, dairy and so on)
- Exercise regularly (at least 30 minutes every day)
- Get adequate vitamin D through sunshine or a supplement
- Obtain calcium and other bone-healthy nutrients from plant sources

Everything we eat forms acids or alkalis when digested. Dairy is acid-forming. The theory is that the body neutralises acids by drawing out calcium from our bones and muscles, causing them to eventually weaken. Potassium salts (alkalis) in fruit and veg protect bones – they may neutralise the acids from dairy and other foods, like meat, sugar and alcohol (Lambert, 2015).

The ongoing European Prospective Investigation into Cancer and Nutrition (EPIC) studied almost 9,000, 35 to 67 year-old women (Weikert *et al*, 2005) and showed that as animal protein intake increases, bone health deteriorates. Conversely, as vegetable protein increases, bones are found increasingly to be protected. This study

accounted for age, weight, hormone replacement therapy, smoking, exercise, alcohol intake, menopausal status, education and occupation... in other words the scientists narrowed down the impact to the effects of protein alone.

When we consume dairy, calcium floods our body and much of it is quickly lost in our urine because so much of it can't be immediately used or stored. When we eat healthy plant foods, we are not overwhelmed with excessive calcium but instead we get a steady supply throughout the day. Our body then uses what it needs without depositing excess calcium in the wrong places, risking kidney stones and hardening of tissues – including blood vessels which can increase the risk of heart attack. Also, when small amounts of calcium are absorbed into our blood throughout the day from plant sources, hormone regulation is more precise so that bone breakdown and build up is not overstimulated.

It is vital that we eat enough calcium, as well as a host of other nutrients, for bone health, see page 92 for recommended amounts. However, osteoporosis is generally not a disease of low calcium. It is caused by many factors including bad diet (often with excess calcium and animal protein and low fruit and veg), smoking, alcohol consumption, low oestrogen or testosterone, lack of exercise and being underweight.

Despite relentless claims by the dairy industry, milk is neither the only nor the best source of calcium. It takes strength to stand up against a lifetime of propaganda – but that is what we have to do in order to sweep aside the myth that dairy is the holy grail for strong bones and teeth. In fact, the opposite is true. In terms of diet, the biggest favour you can do for 'dem bones is avoid dairy and all animal products and enjoy a wholefood vegan diet packed with fruit and vegetables, mushrooms, pulses, nuts and seeds and small amounts of vegetable oils.





The separation of dairy cows and their new-born calves is traumatic for both. Desperate cows can bellow for days in the hope of being reunited with their baby

Animal welfare

THE DARK SIDE OF DAIRY

There are around 1.9 million dairy cows living on the UK's 13,355 dairy farms (AHDB Dairy, 2016). Ninety per cent are the Holstein or Holstein-Friesian breed (black and white cows) while other breeds include Ayrshire, Guernsey and Jersey cows.

Cows produce milk to feed their babies – just like humans. It flows for the best part of a year and then stops. More milk requires more babies so around 1.2 million dairy calves are born in the UK each year – that's the reality of dairy farming. It sounds innocuous but masks a cruel, much darker side of the dairy industry that few people ever see.

DESPERATION

Despite the myth of contentment, a dairy cow is the hardest working mother of all. She nurtures a growing baby inside her for nine months while simultaneously being milked for seven of those months. Owing to selective breeding, the amount of milk she is forced to produce has more than doubled over the last four decades.

In the 1970s, a cow produced an average of 12 litres (21 pints) per day but by 2015 it had increased to 26 litres (46 pints) per day (AHDB Dairy, 2016). High yielding cows produce up to an astonishing 51 litres (90 pints) a day (Farmer's Weekly, 2018).

To keep the flow going, a cow is forcibly impregnated every year by artificial insemination and her first pregnancy occurs between 14 and 28 months old, giving birth to her first calf nine months later.

SEPARATION

A cow would naturally suckle her calf for nine months to a year but calves born on dairy farms are wrenched from their mums just a day or two after birth, once they have suckled the colostrum – and all so we can drink the milk that was meant to nourish her calf. A strong mother-baby bond forms within the first few hours of birth, making their separation



traumatic and supremely callous (Marchant-Forde *et al*, 2002). And it makes no difference whether the farm is organic or intensive.

Farmer's allow the new-born baby to drink colostrum (their mother's first milk) for 24 to 48 hours as it is vital for the calf's immunity. It is high in antibodies that help the calf fight disease. 'Normal' milk production kicks in three to five days after giving birth.

The industry makes poor attempts to hoodwink us as to why they take babies from their mothers. They say:

- Precise amounts of colostrum can be given to the calf after the initial two days of being with mum (and that this benefits the calf)
- Separation reduces diseases in calves

and the biggest myth:

- Dairy cows aren't good mothers, as they lack the instincts to raise a calf

See page 72 for the story of Thelma and Louise, two pregnant dairy cows rescued by Viva! and Lisa James Animal Sanctuary in 2018.

In reality, it's all about money. Isn't it always? Babies are taken from mothers so that we, as human society, can steal all her milk for our consumption. It is also for 'ease of management of the dairy cow'. No calves get in their way at milking time and farmers find it easier housing cows without babies.

The cow will be made pregnant again two to three months after her calf has been removed and the process is repeated every year until she is killed. The magic of reproduction has been perverted with cows no longer seen as mothers producing food for their babies but milk machines.

EXHAUSTION

The crushing double burden of pregnancy and lactation for seven months out of every 12 inevitably takes its toll – excruciating mastitis (udder infection), lameness, infertility and low milk yield. A quarter of all UK cows are culled every year because of physical exhaustion when most are only six years old (Cattle Health and Welfare Group, 2016). This is the age equivalent of killing a woman at about 20 years old.

Professor John Webster of Bristol University's Clinical Veterinary Science Department, compares this cruel and punishing physical burden to "a jogger who goes running for six to eight hours every day, which is a fairly lunatic pursuit".

HUNGER

The Holstein cow has been bred to overproduce milk, making up to 12 times more than her calf could ever drink. For much of the year, the food she eats has to:

- Nourish her own body
- Nourish her growing calf during pregnancy
- Produce enormous quantities of milk

It is almost impossible! The result is a distressed animal who simply

cannot eat enough food at pasture to be healthy and is in a permanent state of metabolic hunger. Cows would naturally spend 12-14 hours a day lying down but the modern dairy cow faces the constant conflict of whether to allow herself the rest she needs or continue eating.

The high demands for calcium and magnesium during pregnancy and for her unnaturally high production of milk often results in illness. Milk fever is the most common cause of sudden death in dairy cows and happens when her low blood calcium cannot support her nerves and muscles. Grass staggers happens when her magnesium intake is low but her needs are high – she may become nervous and excitable and then stagger and fall. Many cows die from this completely preventable disorder.

Cows simply cannot meet the nutritional demands of lactation and it is usual for them to 'milk off their backs' (draw on body reserves), resulting in a 'coat rack' appearance with ribs and spine protruding. In other words, the UK's dairy herd is generally suffering from malnutrition.



LAMENESS

Lameness causes "considerable pain and distress to the cow" (Farm Animal Welfare Council, 2009), and about one tenth of cows are culled because of it (Cattle Health and Welfare Group, 2016). Watch any herd of dairy cows and you'll usually see some hobbling in agony. The average number of lame cows in a herd is almost one in three, although on some farms, it is as high as two thirds (Griffiths *et al.*, 2018). Many are simply left in pain to continue producing milk.

Most lameness cases are due to laminitis, sole ulcers or infections, such as digital dermatitis, while the rest are largely due to leg problems caused by injury during birthing or by badly designed cubicles in which they spend at least six months of their lives. These cubicles are often too small, forcing a cow to stand with her hind legs in the slurry passage and unable to lie down comfortably.

LAMINITIS

"Laminitis is acute or chronic inflammation of soft foot tissue which "results in great pain to the animal" (Defra, 2005).

Laminitis is largely caused by poor winter feed diet that is too high in protein and wet silage, both of which can form toxins in the cow. They travel in the bloodstream to the sensitive tissue of the growing hoof, which is well endowed with blood vessels, where they cause inflammation. Blood flow to the foot is then restricted, making the poor animal prone to ulcers and painful bacterial infections.

To understand the pain of laminitis, Professor Webster of Bristol University says: "...imagine crushing all your fingernails in the door and then standing on your fingertips." (Webster, 2005.)

Distortion

A cow's young would suckle eight to 12 times a day (Defra, 2015) but commercial milking often takes place only twice a day, meaning that up to 25 litres of milk can accumulate in her udder, which swells and can protrude between her hind legs. The outcome is leg distortion and an unnatural stance resulting in lameness.

Udder Pain

Mastitis is an excruciatingly painful bacterial infection of the udder, affecting 38-50 cows out of a 100 every year in the UK (Cattle Health and Welfare Group, 2016). Routine use of antibiotics has consistently failed to control it and milk for human consumption from infected cows can quite legally contain up to 400 million pus cells per litre.

Mastitis is the most common disease in dairy cows and a major reason why they are killed so young (Cattle Health and Welfare Group, 2016).

Mastitis symptoms can be obvious, such as swollen and hard udders and discoloured or clotted milk, but the main symptom – pain – is invisible to the eye.

Bacteria that cause mastitis thrive in dirty, wet bedding and can be transmitted from cow to cow simply due to cows living together or via milking machines. As cows have been bred to produce too much milk, this unnatural strain weakens udder tissues, allowing bacteria to invade. Consistently unhealthy, her immune system is incapable of fighting disease as vigorously as it should.

Infertility

The arduous life that dairy cows endure causes such a rapid physical collapse that an alarmingly high number of young animals are killed due to infertility. A killing rate of 25 per cent is normal for most dairy herds and poor fertility is the single biggest cause (Cattle Health and Welfare Group, 2016; Dobson, 2008).

Although infertility in itself is not a welfare problem, it is an indicator of poor welfare resulting from physical exhaustion. The



Dairy cow at a farm supplying Arla, one of the world's biggest dairy producers. Her udders are oversized causing an unnatural stance, leading to painful sole ulcers. She is shackled to stop her doing the splits – probably due to nerve damage when she gave birth or slipping on the dirty, wet concrete floor

constant drive towards increased milk yields inevitably results in exhausted animals and decreased fertility.

To help combat the problem of infertility, fertility drugs are now in widespread use on British dairy farms.

ZERO GRAZING

Zero grazing is already the norm in some parts of the UK, as Viva!’s investigations of the UK dairy industry and 15 dairy farms that supply Cadbury show. See what we found at scarydairy.org.uk

A report by the European Food Safety Authority states: “If dairy cows are not kept on pasture for parts of the year, ie they are permanently on a zero grazing system, there is an increased risk of lameness, hoof problems, teat tramp, mastitis, metritis, dystocia, ketosis, retained placenta and some bacterial infections” (EFSA, 2009).

Zero grazing is, in effect, a permanent extension of winter when all cows are kept indoors and never graze in fields. Usually kept in large herds, cows have rows of ‘bedding’ areas in the sheds and may or may not have access to outside yards.

Some intensive farms keep cows tethered in their stalls permanently, allowing them out only to go to the milking parlour. The poor animals are entirely deprived of their natural environment, which can lead to abnormal behavior, further stress, disease and aggression.



New-born calves are isolated in hutches for up to eight weeks

WHAT OF THE CALVES? ISOLATION

Female calves follow in their mother’s footsteps, replacing cows who have been killed. The first six to eight weeks of life are usually spent in small, isolated stalls or hutches, making exercise and socialising with other calves impossible. Despite the vast quantities produced, there is no mother’s milk for them, just commercial milk-replacer.

At eight weeks old they must be group housed and at a few months old may be put outside to graze or transferred to a zero grazing unit. At just over a year old, artificial insemination begins, as does their gruelling life as a milk machine. Like their mums, they will die prematurely at about six years old and be used for low-grade meat products.



DESTRUCTION

Unlike their sisters, male calves can't produce milk and are similarly taken from their mothers at a day or two old. Many are pure dairy calves (dairy mother and father) while others are dairy/beef crosses.

Pure dairy bull calves may be sold to beef or veal farms but as they simply aren't 'beefy' enough, they are raised intensively, confined in buildings and yards for most of their 6-12-month-long lives, when they are killed for veal or low-grade beef. Around half of all the UK's beef comes from dairy herds (AHDB Beef and Lamb, 2017). The remainder of these pure dairy male calves are shot shortly after birth – the unwanted by-products of milk production. Current estimates are that 95,000 bull calves in the UK are shot within hours of birth (Cattle Health and Welfare Group, 2018). Viva! filmed the shocking fate of male calves at farms supplying milk for the confectionary giant, Cadbury.

The bull calves that are dairy/beef crosses are usually sold to beef farms and as young as seven-days-old may have to endure long journeys to and from livestock markets across the UK. Further, 'unwanted' male calves are shipped to the Continent for veal. Unweaned babies travel appallingly long and arduous journeys from Scotland to Spain via Ramsgate docks.



Male calf at Ramsgate after 10 hours on a lorry with still days to go before being cruelly reared for veal

END OF THE LINE

For all of her hard work and suffering, the dairy cow is sent to the slaughterhouse as soon as her milk yield drops. Worn out cows often endure a gruelling journey to market where they are sold to fattening (finishing) farms, before being sent to the abattoir, ending up in low quality beef products such as pies, burgers, soups and baby food.

AHDB Dairy even has an online, dairy herd culling calculator, enabling farmers to count their herd's cull rates (AHDB Dairy, 2018). It states the most common reasons for culling dairy cows: infertility, mastitis, lameness and poor milk production. The same website also contains a 'finishing calculator' that allows farmers to calculate the price estimate of a cow's carcass when they're planning to slaughter her.

Thelma and Louise – the Great Escape

I've spent months filming for Scary Dairy and I've seen too many heartbreaking scenes to count. In one, I was privileged to see the birth of a baby calf – with the bitter-sweet feeling of this perfect, beautiful little calf entering the world, and knowing that, within a few days, this mother's baby would be stolen from her.

No matter how loudly she bellows in despair, she will never see her baby again.

All farms do this – it is their normal way of working.

I made a promise to this proud mother cow that one day we would rescue a dairy cow. It's a promise I soon fulfilled with the help of Lisa James and her animal sanctuary.

THELMA AND LOUISE

We discovered a dairy farm that was closing. Two of the Holstein-Friesian cows were about six months pregnant. It was nerve racking rescuing them! Everything had to go to plan. As we arrived, we glimpsed the beautiful cows in a concrete yard and our hearts leapt with joy.

It felt like they knew something good was happening – and they ran into the transporter quickly. And though we felt like putting our foot down, of course we drove slowly to Lisa's beautiful sanctuary in Wales. Waiting for them was Lisa – as well as some very curious residents, especially Duffy the goat, Skylark the sheep, Wendy the hen and all the rescued male dairy calves.

The names Thelma and Louise were chosen from hundreds of entries from Viva! supporters. Fitting for two cows who are inseparable friends and who have escaped so much – but with a very different ending!

Thelma and Louise on their first day
at Lisa James Sanctuary





Louise with her new baby boy,
Charlie Enfys

Tommy Two Sox

In November 2018, Louise gave birth to her baby boy, Charlie Enfys. She meticulously cleaned her baby and was very protective when he first tried to stand as he tottered and wobbled. He is happily feeding. Louise nuzzles him, calls him when he wanders a little too far and is constantly vigilant. In short, she is a wonderful mum. And around Christmas time, Thelma gave birth to handsome, cheeky Tommy Two Sox.

As Lisa of Lisa James Animal Sanctuary explains: "These gentle, wonderful mums-to-be were destined for slaughter. Their babies would have been taken within 48 hours of birth.

Thelma and Louise will keep their babies. Charlie and Tommy will never know the cruelty of the dairy industry and these mums can start their new lives experiencing love and affection at our sanctuary".



Scary Dairy

Viva!s 2018 investigation of dairy farming in the UK in pictures



This poor soul was a wreck, she limped by me, her wasting body wracked with pain. Not some aberrant small farm – but owned by a supplier of Arla, the second biggest dairy group in the world



This cow had an eyeball protruding from its socket – a vet told us she would be in acute pain. Again owned by a supplier of Arla



I witnessed the miracle of birth at Arla – knowing this baby would be taken from her mum within hours, never to see each other again



This cow was suffering so much, we called a vet who euthanised her. She provided milk for Auntie Moos ice cream





A Cadbury calf – alone and desperate, suckled my fingers for comfort. Her mum was metres away but they were parted forever so all her milk could be used for chocolate

These cows never see a blade of grass. They are zero-grazed which causes more lameness, depression and infections



Shackled to stop her doing the splits – probably due to nerve damage when she gave birth or slipping on the dirty, wet concrete floor



Mother and baby caged – about to be paraded at market – this is the last time they will be together



scarydairy.org.uk

A Calf and a Half

A Viva! investigation of Cadbury dairy farms

Our undercover investigators went inside 15 dairy farms that supply Cadbury with milk and exposed the shocking reality of how milk for one of Britain's top confectionary brands is produced. We filmed the shocking fate of male Cadbury calves. Useless to the dairy industry, these 'by-products' are separated from their mothers at only hours old and disposed of. We witnessed a baby male calf being callously shot in the head. His body went to the local hunt for hound food. While this is the fate of numerous Cadbury calves, others are sold into the cruel veal industry or are slaughtered for pet food.

We filmed the trauma of birth and separation, including excruciating birth complications where a jack is used to wrench the calf out of his mother. We also documented the stressful separation of mother and calf and the subsequent desperate calling of both, one to the other. The separated calves were housed in small pens in very basic conditions.

We saw cows with distended udders producing 39 litres a day, zero grazed cows and those with debilitating illnesses – mastitis, lameness and milk fever.

THE SHOOTING OF A CALF

A beautiful little calf, just a few days old, bellows incessantly from a stone shed. He is as perfect as he could be – perfectly formed, perfectly healthy. He is distraught because he has just been separated from his mother and is bewildered and frightened.

"He won't be shouting much longer," says a boiler-suited farmer as a land rover growls up the track into the farm, towing a high-sided trailer. "Come on then," he says opening the gate and ushering the little creature towards the trailer. The teetering young calf doesn't quite know which way to go and needs urging – but his legs give up on him and he falls over.



The tailgate of the trailer is down, revealing a half-full mosaic of black and white, a pattern that quickly resolves itself into individual shapes – a large cow and several calves. All are dead. The driver picks up the calf and places him on top of the pile of corpses, climbing up after him, taking a revolver from his pocket as he does so.

He holds the calf's back while they both try to balance on the pliable bodies beneath their feet and then he levels the revolver at the animal's head: "For God's sake keep still," he says with irritation. BANG! And the tiny creature collapses in a heap, his life extinguished just like the lives of about 95,000 other male calves across Britain each year. The man climbs down, smiling at the farmer – he is from the local hunt.

A notice on the side of the trailer completes the story: "Not for human consumption," it says, "for feeding to hounds." Royal hounds, as it happens, as this load of dead dairy animals was destined for the Beaufort hunt, whose patrons are Prince Charles, his wife Camilla and Prince William.



Nanny State

Are you thinking about giving up cow's milk and replacing it with goat's? After all, goat's milk is promoted as the angelic answer to those who want a healthier, more humane alternative. The irony is that all the problems that exist in cow's milk production also exist in goat farming.

Mother and kid are separated almost immediately so her milk can be taken. Females are used to replenish the herd but males can't produce milk so they are either killed at birth or kept for meat for the growing ethnic market. Almost all kid goats suffer at least one painful mutilation (castration, dehorning), usually without anaesthetic.

Worried about zero grazing for cows? Well, it's already the norm for goats. Many herds run to over a thousand animals and these inquisitive, fun loving creatures are almost always housed in all-year-round intensive sheds.

A major Viva! investigation reveals the sickening life of goats on two of Britain's biggest dairy goat farms, one of which supplies the major distributor, Delamere Dairy. Upper Enson Farm, in Stafford, has some 1,800 animals and our investigator found it strewn with dead kids and a skip overflowing with corpses (Gellatley *et al*, 2012).





THE KIDS ARE NOT ALRIGHT

Another farm I visited near Taunton, Somerset, had about 1,200 animals. It was heart-breaking to film the beautiful, innocent reasons for the nanny goats' milk – their baby kids. The babies I filmed could barely stand, they were so young and so vulnerable – already robbed from their mums. As with all mammals, goats produce milk only because they give birth. Theirs is a five-month pregnancy. They are well known for being vigilant, loving and protective mothers but on all UK dairy goat farms, male and female babies are taken away almost immediately after birth.

We were informed that the male kids were, until recently, 'disposed of' by being swung by their legs to smash their heads against a metal post. When we filmed, however, a market had been found and they were being sold for meat to a Bristol-based company.

BILLY GOATS GRUFF

The male kids at Upper Enson Farm were also being sold for meat, which meant they had to suffer the pain of castration. Viva! filmed two women casually lifting baby billy goats and placing a rubber ring around the base of their testicles so the blood supply was cut off and the testes would slowly shrivel and die. The government's Farm Animal Welfare Council (FAWC) describes this procedure as causing "pain and distress" and urges it be used as little as possible. At the very least, it pleads for pain relief to be given. It wasn't in this case.

We also filmed female kids being 'disbudded' by having their horn buds burnt out. A worker holds a baby animal over her lap, pushing the kid's neck into her leg as she forces the heated device down into the skull. The little creature struggles and cries. Kid after kid bleats and screams as each is subjected to this painful mutilation.

Goats are active, inquisitive, capricious, unpredictable, flighty, impulsive and whimsical. The word capricious comes from the Latin for goat (*capra*). It is shameful that these highly-intelligent, playful, endlessly curious animals are increasingly being factory farmed.

Delamere Dairy sells goat's milk products to almost every



supermarket in the UK, including Sainsbury's, Tesco, Waitrose, Coop, Budgens, Asda, M&S and Whole Foods. Not only do they claim to have exceptionally high animal welfare standards but they also make some pretty grand health assertions!

GOOD FOR HEALTH? STOP KIDDING

"For those people who experience cow's milk intolerance, goat's milk is an ideal substitute..." Delamere boast on their website. Others claim that it is also perfect for people with cow's milk allergies. But what does the science say?

Goat's milk has virtually the same lactose (sugar) content as cow's milk, containing 4.4g lactose per 100g of milk. Whole cow's milk contains 4.5g and semi-skimmed cow's milk, 4.7g. Patrizia Restani, from the Department of Pharmacological Sciences, State University Milan, reviewed the science on allergies and goat's milk and concluded that it is wholly unsuitable for the lactose intolerant (Restani, 2004).

Even more serious than lactose intolerance is milk allergy, caused by proteins and not sugars. Restani insists that statements claiming goat's milk is less allergenic than cow's milk are "controversial" and have "not been proved". She adds that there are more scientific papers showing the opposite!

For example, 26 infants aged five months to seven years, who were allergic to cow's milk protein, were tested for goat's milk allergy. Twenty four out of 26 were allergic to both. In another study, 22 out of 28 children were allergic to both milks and just six to cow's milk alone.

Several independent studies have shown that milks from different animals all produce a similar immune reaction in people with cow's milk allergy.

Restani forcefully concludes that given the severity of the reaction to goat's milk in some people – which includes hives, eczema, difficulty in breathing and vomiting – goat's milk "must not be considered an appropriate replacement for infants or children with cow's milk allergy" and that "labels suggesting use of goat's milk for intolerant/hypersensitive people should be banned" (Restani, 2004).



HORMONE COCKTAIL

Because of its link with cancer, the big question is: does goat's milk contain the growth hormone, IGF-1? Scientists conclude that: "IGF-1 is present in goat's milk" and can survive in commercial milk products (Magistrelli, 2005).

Another hormone present in both cow's and goat's milk is oestrogen, though at a lesser concentration in goat's milk. Most oestrogens in our diet come from animals' milk and those in goat's milk are precursors to 'catechol oestrogens', strong promoters of cancer.

FAT KID

According to research in the *Journal of Dairy Science*, "The largest health concern for consumers of goat's milk is likely to be its greater fat content compared to cow's milk. More troubling is how much of the fat in goat's milk is saturated fat... if one is looking for a heart-healthy diet that includes dairy... goat's milk may not be the best alternative to cow's milk" (Farlow, 2012).

ARE YOU TAKING THE PUS?

Most revolting, though, is the 'somatic cell' or pus content of goat's milk! Cow's milk can legally contain up to 400 million pus cells per litre, so one teaspoonful of milk can have two million pus cells! According to the Universities Federation for Animal Welfare, 65 per cent of goat milk samples will have a cell count greater than 1,000 million cells per litre (Mowlem, 2011)! Milk really has got the lot!

With goats as with cows, it is the philosophy of factory farmed, mass production that triumphs; the same old cycle of pregnancy, removal of babies, constant milking, disease, deprivation and early death. And all for a product that may promote disease. Thank goodness for plants – soya, almonds, oat, hazelnuts, rice – and their milk of human kindness.



Everyone's Going Dairy-Free

WHAT I NEED TO EAT EACH DAY

NO. OF SERVINGS At least 8

FOODS **Fruits:** Berries, apples, pears, peaches, oranges, kiwi fruit, bananas, raisins, mango etc.

Eaten whole or in smoothies (juices are more acidifying because they don't contain fibre and provide fruit sugar more readily than whole fruit).

And Vegetables: Broccoli, cauliflower, spinach, kale, leeks, carrots, peppers, tomatoes, squash, green beans, sweet potatoes, celery, lettuce, cabbage, Brussels sprouts etc.

HEALTHY PORTION SIZE

Fresh fruit: 1 medium piece (the size of a tennis ball)

Dried fruit: 1-1½ tablespoons or 1 golf ball

Green or root vegetables: 2-3 tablespoons or ½ tennis ball

Salad vegetables: 1 large cereal bowl or 80g

TO PROVIDE ● Beta-carotene (makes vitamin A), Vitamins B2, B3, B5, B6, B9 (Folate), Vitamin C, Vitamin E, Vitamin K

● Minerals/trace elements such as Calcium, Iodine, Iron, Magnesium, Manganese, Phosphorus, Potassium

● Fibre



NO. OF SERVINGS 3-4

FOODS **Wholegrains** (eg Wholemeal Pasta, Wholemeal Bread, Brown Rice, Oats, Rye, Buckwheat etc)

HEALTHY PORTION SIZE

Cooked grains: 2-3 heaped tablespoons or ½ cup

Breakfast cereal: 25g or 1 regular sized cereal bowl

Muesli: 45g or a small sized bowl

Cooked wholemeal pasta: 1 cup as side dish or 2 cups as main dish

Wholemeal or rye bread: 2 slices

TO PROVIDE ● Vitamins such as B1, B2, B3, B5, B6

- Minerals/trace elements such as Calcium, Copper, Iron, Magnesium, Manganese, Phosphorus, Potassium, Zinc
- Fibre, Energy, Protein



2

NO. OF SERVINGS 3-4

FOODS **Pulses** (eg all types of Peas, Beans and Lentils), Nuts and Nut Butters or Seeds

HEALTHY PORTION SIZE

Peas, Beans and Lentils: ½ cup (cooked)

Nuts or Seeds: 2 tablespoons or a small handful

TO PROVIDE ● Vitamins such as B1, B2, B3, B5, B6, B9

- Minerals/trace elements such as Calcium, Copper, Iron, Magnesium, Manganese, Phosphorus, Potassium, Selenium, Zinc
- Protein, Energy, Fibre



3

NO. OF SERVINGS Small amounts

FOODS **Vegetable Oil** (eg Flaxseed, Hemp Seed, Virgin Olive Oil or Rapeseed Oil used cold; Sunflower or Soya Oil for cooking)

Vegetable Margarines

HEALTHY PORTION SIZE

½ tbsp flaxseed oil or 1½ tbsp of ground flaxseeds

TO PROVIDE ● Vitamins such as Vitamin E (Vegetable Oils), Vitamins A & D (Fortified Margarine)

- Energy
- Essential Omega-3 and Omega-6 Fats (Flaxseed, Soya, Walnut and Hemp Oils)



4

NO. OF SERVINGS At least 1

FOODS **B12 Fortified Foods or B12 supplement**

B12 Fortified Foods (essential if vegan), eg Fortified Soya Milk, Fortified Breakfast Cereal, Yeast Extract (Marmite, Meridian Yeast Extract with B12) or a B12 Supplement

TO PROVIDE ● Vitamin B12



5

NO. OF SERVINGS Small amounts

FOODS Vitamin D (made by sunlight on skin)

If you live in the UK take a vitamin D supplement during winter months (no matter what your diet!)

TO PROVIDE ● Vitamin D



6

About 1.2 litres of fluid every day (six 200ml or eight 150ml glasses) should also be consumed as part of healthy, balanced diet. Water is the best choice. Hot beverages and juices can be counted as water.



7

Chart by Juliet Gellatley BSc, Dip CNM , Viva!.

For a laminated wallchart go to vivashop.org.uk/goodhealthwallchart

Boning up on calcium

WHY DO WE NEED CALCIUM?

You guessed it – for bone health and strength! Around 99 per cent of our calcium is deposited in bones and teeth, the other one per cent is involved in the regulation of muscle contraction, heartbeat, blood clotting and functioning of the nervous system.

How much do we need? The UK reference nutrient intake (RNI) value for calcium is:

HOW MUCH CALCIUM YOU NEED EACH DAY

Your Age	How Much Calcium You Need Each Day
0-10 years	350-525mg
11-18 years	800mg girls, 1000mg boys
Adults	700mg

Are you joining the millions of people in the UK who are dairy-free? A fantastic starting point is to sign up to the free 30 Day Vegan. Viva! will email you every day for 30 days with:

- Tasty, healthy breakfasts, lunches and dinners
- Celebrity vegan inspiration
- Nutritional advice
- Health information
- CAN'T COOK, WON'T COOK! version

Try going dairy-free for a month now! Sign up for your free inspirational emails at 30dayvegan.viva.org.uk



HOW MUCH CALCIUM IS IN THESE FOODS?

The following table shows how much calcium is present in a range of calcium-rich foods.

Food (and serving size)	Calcium (milligrams)
Cauldron Foods Organic Plain Tofu (one pack – 250g)	500
Dried Figs (100g – four to six pieces of fruit)	250
Alpro Soya Milk (200ml glass)	240
Dhal/lentils (cooked 5tbsp)	200
Sesame seeds (25g – a small handful)	168
Watercress (80g portion raw)	136
Curly kale (80g portion boiled in unsalted water)	120
Wholemeal bread (2 slices)	100
Muesli (Swiss style or crunchy)	100
Baked beans (small tin 200g)	100
Brazil nuts (30g – a small handful)	87
Orange (medium)	75
Almonds (30g – a small handful)	72
Kidney beans (2tbsp)	70
Tahini (10g – two teaspoonfuls generously spread on one piece of toast or stirred into a bowl of soup)	68
Broccoli (80g portion boiled in unsalted water)	32
Sunflower seeds (25g – a small handful)	28

My calcium-rich foods



ALMONDS



APRICOTS (DRIED)



ARTICHOKES



ASPARAGUS



BAKED BEANS (HARICOT)



BLACKBERRIES



BLACKCURRANTS



BLACKSTRAP MOLASSES



BOK CHOY



BRAZIL NUTS



BREAD (WHOLEMEAL)



BROCCOLI



CHICKPEAS



CINNAMON



EDAMAME (SOYA BEANS)

Top Tip!

Vitamin D is made by sunlight on the skin and is needed for calcium absorption. If you live in the UK, take a vitamin D supplement over winter.

HOW MUCH SHOULD I EAT A DAY? 700MG



FENNEL



FIGS (DRIED)



KALE



KIDNEY BEANS



ORANGES



ROCKET



SESAME SEEDS
(EG IN TAHINI AND HUMMUS)
(AND OTHER SEEDS)



SOYA MILK (FORTIFIED)



SPRING GREENS



SWEDE



TOFU (CALCIUM-SET)



WALNUTS



WATERCRESS

For a laminated, A4 poster of this chart for your kitchen, visit vivashop.org.uk/calcium-poster

WHAT IF WE DONT GET ENOUGH?

When your diet does not provide enough calcium, it is taken from your bones in order to restore blood levels and maintain calcium-dependent bodily functions. If enough calcium is subsequently supplied, bone levels are restored but if your diet consistently fails to supply sufficient calcium, bone loss persists.

ARE PLANT MILKS GOOD SOURCES OF CALCIUM?

As you can see in this chart, yes, fortified soya (all types except organic), rice, oat and almond milks are all excellent sources of calcium. They are also much lower in 'bad' fats, have no cholesterol and are fortified with the important vitamins D and B12.



COMPARING COWS' AND GOATS' MILK WITH PLANT MILKS

Per 100ml	Whole cow's milk	Semi-skimmed milk	Goat's milk	Alpro soya milk	Alpro rice milk	Alpro almond milk
kcal	66	46	62	40	47	24
Calcium (mg)	118	120	100	120	120	120
Protein (g)	3.3	3.4	3.1	3.0	0.1	0.5
Fat (g)	3.9	1.7	3.7	1.8	1.0	0.1
Saturated fat (g)	2.5	1.1	2.4	0.3	0.1	0.1
Cholesterol (mg)	14	6	11	0	0	0
Vitamin D (mg)	Trace	Trace	0.1	(D2)	(D2)	(D2)
				0.75	0.75	0.75
Vitamin B12 (ug)	0.9	0.06	0.1	0.38	0.38	0.38

IS THAT ALL? NO. DOSE UP ON VITAMIN D!

Here's your excuse for more holidays abroad! We need vitamin D to absorb calcium so if you have enough calcium but are low in vitamin D, you can be calcium deficient. Sunlight on our skin helps us make vitamin D but anyone who has little exposure to sunshine or always protects their skin from the sun should consider taking a 10 microgram vegan vitamin D supplement. It is now advised by the UK government that we apply sun block after 10 to 15 minutes exposure to the sun, to give us a chance of making vitamin D and that, if you live in the UK, in winter, everyone should take a vitamin D supplement.

Furthermore, magnesium, potassium, vitamin C and vitamin K are all required for good bone health so a healthy diet that includes eight to 10 servings a day of fruit and vegetables will sort you out.

If you live in the UK, take a vitamin D supplement during winter months (no matter what your diet!).



Conclusion: Milk – The wrong stuff

Drinking milk is cruel – it's also unnatural. Only humans drink it after weaning – and milk from a different species at that. It's no more natural than drinking badger's or cat's milk.

Designed for calves, many humans find milk hard to digest and the result is discomfort and pain. Hormones in milk are linked to cancers such as breast and prostate cancer as well as the teenage scourge, acne. Its proteins are linked to type 1 diabetes and allergies. The saturated fat, cholesterol and, again, animal protein it contains are linked to heart disease, Alzheimer's, type 2 diabetes and many other diseases.

Despite relentless claims by the dairy industry, milk is neither the only nor the best source of calcium and even increases bone fracture rates.

Beans, lentils, broccoli, kale, watercress, nuts, seeds, soya and other plant foods are better and healthier sources.

Ditching dairy products has never been easier as supermarkets and health food shops now stock a wide selection of delicious and nutritious dairy-free alternatives to milk, yogurt, ice cream, margarine and cheese!



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Sources for table: How low can you go? (On page 16.)

Examples of percentage of protein in mammalian milk – humans are lowest
Milk Composition – Species Table, Milk Composition & Synthesis Resource Library, Department of Animal Sciences, University of Illinois:
http://ansci.illinois.edu/static/ansc438/Milkcompsynth/milkcomp_table.html

*Skibieli *et al*, 2013. The evolution of the nutrient composition of mammalian milks. *Journal of Animal Ecology*. 82 (6) 1254-1264 (see supporting information online: <http://onlinelibrary.wiley.com/doi/10.1111/1365-2656.12095/abstract>)

**McCance and Widdowson's Composition of Foods integrated dataset (CoFID): www.gov.uk/government/publications/composition-of-foods-integrated-dataset-cofid

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