Viva!

CRACKED

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Everything you need to know about eggs

– how they're produced, the chickens who lay them and how eggs affect your health

By Veronika Powell MSc,
Claire Palmer MSc and Tony Wardle

£1.50

About Viva!

Viva! campaigns for a vegan world.
Most farmed animals spend their short and miserable lives in the filth of factory farms and are killed with sickening barbarity – we expose this abuse through investigations and publicise it with nationwide campaigns that bring about change. Billions of animals are also killed at sea, causing immense suffering and contributing to the ecological collapse of our oceans. We address these issues too.

Viva! publishes the highly acclaimed *Viva!life* magazine and runs the online Vegan Recipe Club with hundreds of recipes illustrated in full colour. Packed with chef's tips, hints and advice, you can even search for recipes based solely on your favourite ingredients: **www.veganrecipeclub.org.uk**

Viva! provides all the information and support necessary to help people change their diet because the best way to protect animals is to stop eating them: **www.viva.org.uk**

About Viva!Health

Viva!Health is a section of Viva! that monitors scientific research linking diet to health and provides accurate information on which to make informed choices about the food you eat. Viva!Health regularly communicates with the public, health professionals, schools and food manufacturers through campaigns, scientific reports, informative guides, fact sheets and more: **www.vivahealth.org.uk**

Cracked
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About Cracked

Viva!'s Cracked campaign pulls together the findings of a year-long investigation into the life of Britain's laying hens. Our team of investigators went undercover in free range, organic and enriched cage farms across the country to show you what life is really like for hens since the ban on battery cages. What we found was a hopelessly cracked industry built on profit and exploitation that causes pain and suffering to hens on an almost unimaginable scale:
www.viva.org.uk/cracked

Introduction

You see plenty of eggs when you go shopping but not the chickens who lay them. According to the adverts, these hens roam through open spaces, dust bathe in the sun, forage in nettle patches and sometimes even have names. When did you ever see an advert showing near featherless chickens crammed together in row upon row of cages?

Pictures on supermarket egg boxes complete the illusion of rural contentment. And anyway, how could you possibly bake a cake without eggs?

It's easy to sell a myth when you know that few people can check the truth. Embellish that myth with 'quality assurance' schemes, a little 'British Lion Quality' stamp on every egg and claims of 'high animal welfare' and you have the near-perfect con. Tack on glowing claims that 'eggs are one of the most nutritious foods money can buy' and you are in marketing heaven.

The United States Department of Agriculture (USDA), however, pays much more attention to scientific research than does our own government. It will not allow the American Egg Board to claim that eggs are 'healthy' or 'nutritious'. They are banned from saying that eggs are a 'rich source of protein', that they are a good diet food and are certainly not allowed to say that 'eggs are good for you'. Why? Because eggs are none of these things and the health section of *Cracked* will explain why and which diseases are linked to egg consumption.

So what about dust bathing and the rest? We can say with complete authority that these claims are even more bloated than those for health. We know because we have filmed extensively inside the different types of commercial egg-producing units – free range, barn and caged. Oh yes, cages are still with us and most eggs come from birds imprisoned in them. *Cracked* will take you through these different systems and reveal precisely what this means for the hens who have to endure them.

And yes, you can bake cakes without eggs and you won't know the difference. We'll introduce you to Viva!'s Vegan Recipe Club, with more egg-free dishes than you can shake a stick at.

Eggs and health

By Veronika Powell, MSc (Biology) and Tony Wardle

Eggs have never been an essential part of the human diet, merely an addition. There is no recommended egg intake simply because we don't need to eat any. Whilst they do contain some nutrients, the health risks far outweigh any benefit.

To reinforce this point, in correspondence between USDA (United States Department of Agriculture) and the American Egg Board, the Board was clearly instructed that **eggs cannot be advertised as healthy** and nutritious because of their cholesterol and fat content; **they cannot be marketed as protein-rich foods** either, simply because they're not (Greger, 2014). **Eggs cannot be sold as safe** – because they are the main source of salmonella food poisoning (in the US) and there's a risk of bird flu infection (Greger, 2014).

Clearly, the US government pays greater attention to scientific research than does our own government, which still persists in promoting eggs as a desirable food – even essential. They are neither!

Heart Disease

Eggs contain saturated fat and cholesterol yet the industry is very good at confusing people – even healthcare professionals – into believing that eating eggs is harmless. There are very good reasons to avoid them because they do increase your risk of heart disease.

Saturated 'bad' fats

Professor David Spence, director of Stroke Prevention & Atherosclerosis Research Centre in Ontario, Canada, warns that **eating eggs can have an effect on blood vessels similar to smoking** (Spence *et al*., 2012). He and his team surveyed more than 1,200 patients and found that regularly eating egg yolks contributed to an increased build-up of arterial plaques. These are cholesterol deposits that attach themselves to artery walls and become a serious risk factor for stroke and heart attack.

When eggs are cooked at high temperatures cholesterol oxidation takes place, a process that results in by-products increasing the risk of heart disease. These cholesterol by-products **may also be toxic to body cells and cause DNA damage** (Mili evi *et al*., 2014).

There's been a long-running debate about saturated fats in the diet and whether they're a good thing or a bad thing – mostly spurred by sensationalist media articles. The scientific data point in one direction only – **saturated fats are not good for you!**

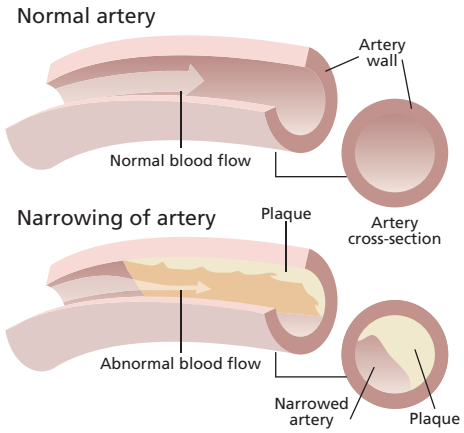
Recent research pooled data from two long-term studies involving over 126,000 people (Li *et al*., 2015). It showed that saturated fats (eggs are a rich source) are not healthful and replacing them with unsaturated fats and healthy carbohydrates from wholegrains can significantly reduce the risk of heart disease.

An earlier large study found much the same thing – **eating eggs and high-fat dairy products can increase the risk of heart failure** (Nettleton *et al*., 2008).

Choline

And there's more! Eggs contain a substance called choline – an essential nutrient needed for cell membranes, nerve signal transmission and other metabolic functions. Too much, however, can be damaging to health and eggs are by far the richest source. We can get all the choline we need from plant foods.

Research into choline intake and heart disease found that one of the by-products of choline (trimethylamine-N-oxide – TMAO) is associated with the build-up of arterial plaques, **promoting heart disease** (Tang *et al*., 2013). The higher the levels of TMAO, the higher risk of serious 'events' – strokes and heart attacks.



Cholesterol

Professor Spence also authored a scientific paper published in the *Canadian Journal of Cardiology* warning that **the amount of cholesterol in just one egg can exceed the maximum recommended daily amount (RDA)** (Spence *et al*., 2010). A single large egg yolk contains about 275 milligrams whilst people at risk of cardiovascular disease are advised not to eat more than 200 milligrams. As Professor Spence points out, cutting down on cholesterol after you develop health problems is a bit like shutting the stable door after the horse has bolted.

Diabetes

The main finding of Professor Spence's study was that people who ate an egg a day had **double the risk of developing diabetes type 2** compared to people who had less than one egg a week.

Another study, of 57,000 US adults who ate eggs daily, found they were **58-77 per cent more likely to develop diabetes type 2** than those who didn't eat eggs (Djoussé *et al*., 2009). A more recent study agrees – egg consumption affects blood sugar metabolism and increases the risk of developing type 2 diabetes, mostly due to the cholesterol in eggs (Lee *et al*., 2014). Cholesterol both inhibits the production of insulin (hormone responsible for sugar metabolism) and can lower the body's sensitivity to it.

Food poisoning – Salmonella

Salmonella food poisoning is one of the most common and widespread diseases carried by food, affecting tens of millions of people across the world every year and eggs are the main source (Miranda *et al*., 2015). Symptoms include diarrhoea, stomach cramps, nausea, vomiting and fever. Salmonella is destroyed by cooking so the main risk is from raw or undercooked eggs and egg products, such as meringues and mayonnaise. Contamination is another infection source, the bacteria passing from one product to another.

Salmonella is a hardy bacterium that can survive several weeks in a dry environment and several months in water (WHO, 2013). It comes in **thousands of different strains and some are antibiotic-resistant**. In most cases, people who become ill recover within a few days but in extreme cases, or in people whose health is compromised, death can be the result. Severity depends upon your health and the particular strain of salmonella, although all strains can cause disease to some degree or other (WHO, 2013).

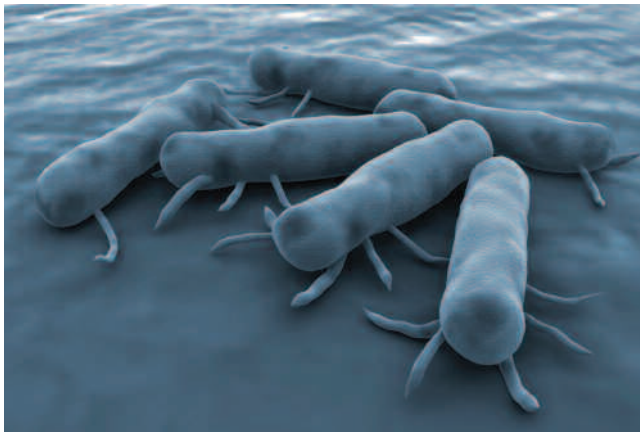
Because of previous salmonella outbreaks, egg-laying hens on farms subscribing to the British Lion Quality code of practice have to be vaccinated against it. According to the British Lion Quality website, 85 per cent of eggs in the UK are now produced under their mark (British Lion Quality website, 2016). It follows that 15 per cent of UK eggs come from farms that might or might not have vaccinated their chickens or are imported.

Farms that have fewer than 350 hens don't have to comply with the Salmonella National Control Programme so are largely unregulated where salmonella is concerned (DEFRA, 2012).

Vaccination did significantly reduce the number of salmonella food poisonings but it doesn't guarantee eggs are salmonella-free. Although egg yolks and whites are rarely infected, **it's the eggshells that can be a considerable problem** (O'Brien, 2013). In a UK study, eggshell contamination with salmonella was lower in vaccinated hens than non-vaccinated but the reduction was 15-60 per cent – far from the claims of some newspaper headlines eggs are now salmonella-free (Arnold *et al*., 2014).

Under UK regulations, class A eggs are not to be washed or cleaned, before or after grading – no exceptions (DEFRA, 2016). The reason is because the egg's natural protective layer acts as a barrier

to bacteria and washing can pose the risk of salmonella penetrating into the egg. The truth is that **eggshells can carry salmonella and you can become infected by handling them.**



A total of 721 salmonella cases were reported from chicken flocks in 2014, lower than in previous years but still a considerable number. In the same year, 34 known strains of salmonella were isolated from flocks and 147 unknown (Animal and Plant Health Agency, 2015). The number of chicken-related salmonella food poisoning reported cases in people was 6,505 in 2014 (Animal and Plant Health Agency, 2015), however the real number of cases is likely much higher.

At the moment, there is a target of no more than two per cent of laying hen flocks to test positive for the two main strains of salmonella involved in previous outbreaks (*S. Enteritidis* and *S. Typhimurium*) but **this limit doesn't apply to other salmonella strains** (Animal and Plant Health Agency, 2015).

Forty laying hen flocks tested positive for Salmonella under this statutory testing programme in 2014 but only two of the 40 were regulated strains (Animal and Plant Health Agency, 2015). Commercial vaccines are based on just one or both of the two strains that were responsible for past epidemics – *S. Enteridis* and *S. Typhimurium* (Arnold *et al*., 2014). These two regulated strains are now at very low levels but **other strains are increasing** (Animal and Plant Health Agency, 2015).

The latest report by the Advisory Committee on the Microbiological Safety of Food (ACMSF, 2016) reckons that eggs produced under the UK Lion code, or equivalent schemes, may be served raw or lightly cooked as they're now considered at very low risk of carrying the two regulated salmonella strains. However, for eggs not produced under the British Lion Quality code or from outside the UK, existing advice remains – young children, the elderly, pregnant women and those who are already unwell should avoid raw or undercooked eggs (ACMSF, 2016).

There were 88,715 confirmed cases of salmonella food poisoning in the EU in 2014 (ACMSF, 2016). The number of food-borne outbreaks was down by 44 per cent between 2008 and 2014, from 1,888 to 1,048 outbreaks. However, **eggs and egg products accounted for almost a half of this number.**

In some European countries (Austria, Belgium, the Czech Republic, Germany, and Hungary) vaccination of laying flocks is compulsory, in others it is recommended (Bulgaria, Belgium, Cyprus, Estonia, France, Greece, Italy, Latvia, Lithuania, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain: and the UK). In Denmark, Finland, Sweden and Ireland it is banned (Arnold *et al*., 2014).

Legislation and official figures showing a reduction in UK cases definitely linked to eggs are meant to offer reassurance – 548 cases in 2009, 324 in 2011 and 188 in 2014 (ACMSF, 2016). However, research by Inns *et al*. (2015) claims there were 287 cases in 2014, not 188. Another paper documenting salmonella decline in the UK (Barrow *et al*., 2012) stated that eggs were responsible for 459 human cases in 2010 whereas the official figures put the total at just 88 cases (ACMSF, 2016). **This naturally raises doubts about the credibility of official figures.**

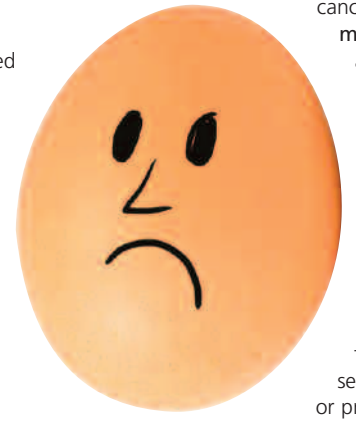
The ACMSF report warns about the under-reporting of salmonella food poisoning cases as many go undetected – large numbers of people don't go to the doctor when they have food poisoning symptoms. It's estimated that in 2010 there were some **5.4 million genuine cases of human salmonellosis in the EU** (ACMSF, 2016) but only 99,020 were reported (EFSA & ECDC, 2012). That is a huge difference and although not all cases were related to eggs, it's worth bearing in mind.

Food poisoning – Listeria, Campylobacter and Contaminants

Eggs can also carry other dangerous bacteria such as *Listeria* and *Campylobacter* that have been known to cause serious illness in people, although they are not the main source (ACMSF, 2016).

There is also the possibility of veterinary drug residues and environmental pollutants. Laying hens treated with drugs and given feed containing pesticides can produce contaminated eggs (Miranda *et al*., 2015; Pirozzo *et al*., 2002). Traces of many of these **potentially toxic pollutants are usually present even in free range and organic eggs (**Miranda *et al*., 2015**).**

Cancer



Egg consumption has been linked to cancer, especially to hormone-sensitive cancers. In a study of ovarian cancer patients and healthy women, researchers discovered there was **a strong and significant relationship between cholesterol from eggs and the risk of ovarian cancer** (Pirozzo *et al*., 2002). Interestingly, the link was only with egg cholesterol and not other sources of cholesterol, which suggests the culprit might be a substance linked to eggs and egg yolks but not cholesterol itself. Women eating more than two eggs a week had an 82 per cent higher risk of developing ovarian cancer compared to women eating less than one egg per fortnight. The risk increase from eating just one or two eggs a week was 71 per cent!

A large study examining the link between the consumption of eggs, red meat and poultry and prostate cancer, published in the journal *Cancer Prevention Research,* revealed that by consuming 2.5 eggs per week, **men increased their risk of prostate cancer by 81 per cent**, compared with men who consumed less than half an egg per week (Richman *et al*., 2011). It followed the dietary habits of 27,607 men for 14 years. Eating poultry and processed red meat also increased the risk of death for men who already had prostate cancer.

Another study looked specifically at the intake of choline and the risk of prostate cancer over a period of 22 years (Richman *et al*., 2012). Whole eggs are the richest dietary source of choline and it was discovered that choline is highly concentrated in prostate cancer cells and that higher blood concentrations of choline are associated with an increased risk of prostate cancer. **Men with the highest choline intake had a 70 per cent increased risk of lethal prostate cancer**. The study authors said the mechanism of exactly how choline is linked to prostate cancer isn't clear but choline metabolism is clearly altered in prostate cancer.

A scientific team analysed a series of studies on the relationships between egg consumption and the risk of breast, prostate and ovarian cancer (Keum *et al*., 2015). **Five and more eggs a week was linked to an increased risk of these hormone-sensitive cancers** – with **the risk of fatal prostate cancer being especially high.** The authors suggested several factors – cholesterol is involved in the synthesising of sex hormones such as testosterone and oestrogens that promote cell growth. Excessive amounts of sex hormones can contribute to cancerous growths in hormone-sensitive tissues such as breast, ovary or prostate. At the same time, cholesterol and choline are both essential components of cell membranes and a plentiful supply might help cancerous cells to grow.

Hard-boiled facts

The truth is – it's best to steer clear of eggs – they're not essential for your health and can significantly harm it. Many recipes can easily be adapted to be egg-free – both a healthy and ethical choice! A wholesome vegan diet is the best possible for our health, animals and the environment.

For more information on vegan health and nutrition go to the Viva!Health website: www.vivahealth.org.uk

Viva!

Vegan egg replacers

What	How much	Best for	Available from
Commercial egg replacer eg Ener-G Egg or Orgran	1½ tsp + 2 tbsp water – use as directed on the packet 	Biscuits/cookies – items that are crispy	Health food shops, supermarket free from/speciality food shelves
Soya flour	4 tsp mixed with 2 tsp water to form a paste	Cakes, muffins, cookies and other squidgy things. Nut loaves, savoury burgers	Health food shops
Gram flour (also called chickpea or besan flour) with regular flour	2 tbsp gram flour for every 350g regular flour. Sieve well as it is prone to lumps	Pancakes, nut loaves and savoury bean or lentil burgers	Large supermarkets, ethnic grocers and health food shops
Ground flaxseed (also known as linseed)	1 tbsp ground to a powder and mixed with 3 tbsp warm water. Let it sit for a few minutes until it turns glutinous – often called a flax egg! 	Pancakes, bran muffins, cakes, breads, oatmeal cookies, burgers or nut loaves. Best to use only 1 egg's worth in any recipe, otherwise the taste can be too strong	Ready-ground flaxseed eg Aldi, Sainsbury's, Holland & Barrett etc. Can also be sprinkled on cereal and smoothies for a nice omega boost! Store in the fridge
Silken tofu	55g/scant 4 tbsp/¼ cup mixed with ½ tsp baking powder	Cakes or other moist recipes – not biscuits or pancakes (makes them too heavy)	Large supermarkets, ethnic grocers and health food shops
Apple purée	60g/4 tbsp/¼ cup mixed with ½ tsp baking powder as a raising agent	Cakes, quick breads and brownies – moist items, not crispy	Health food shops or supermarkets 
Banana 	½ a medium-large banana, mashed thoroughly	Good in loaf or banana bread as well as quick breads, muffins, brownies, most cakes and pancakes	Everywhere!
Sweet potato	1 small sweet potato, peeled, cubed, steamed until soft then mashed to a purée	Use like apple purée or banana 	Greengrocers and supermarkets etc
Soya yoghurt	4 tbsp – or 500ml if making our fantastic big sponge cake! 	Makes things moist, so good in quick breads, cakes, muffins, ie not biscuits or anything crispy	Alpro or Provamel plain yoghurt from supermarkets and health food shops; Sojade or Sojasun from health food shops
Baking powder and vinegar	1 tsp baking powder & 1 tbsp cider vinegar – mix together and add to the cake mix immediately	Cakes, cupcakes, fruit cake and quick breads	Supermarkets and health food shops
Aquafaba (canned chickpea water, whisked)	Liquid from one can (salt-free works best) 	Meringues, marshmallows, macarons, mayonnaise, mousse	Everywhere!

Eggs are used to do two jobs: bind a mixture together and make it rise. These replacers do the binding job (except the Aquafaba). To make cakes rise a bit more, use a little extra baking powder and/or bicarbonate of soda – anything from 1-4 tsp, depending on the type and size of cake and whether plain or self-raising flour is used. See our cake recipes at Viva!'s **www.veganrecipeclub.org.uk** for more specific guidance.

Viva! reg charity 1037486

Vegan recipe club
Deliciously vegan recipes

Egg laying hens

By Claire Palmer, MSc (Zoology) and Tony Wardle

Chickens are extraordinary birds, as anyone who has kept them will know. They are bright, intelligent, inquisitive and restless, strutting everywhere, constantly seeking new treats to eat – almost anything from insects and their larvae to grasses, seeds and last night's leftover veg curry!

They are also the most widely distributed of all domesticated animals living all over the world. They are, of course, bred for their meat but also for eggs and selective breeding has produced two very different types of chickens. Those reared for meat put on weight extraordinarily quickly whilst egg-laying hens are lightweight, even frail, as all their energy is directed into egg laying. The one thing both types have in common is the appallingly cruel conditions in which they are kept.

Natural vs Farm Life of Hens

Domesticated chickens (*Gallus gallus domesticus*) are a subspecies of the red jungle fowl, still found of the Indian Subcontinent, and naturally live from five to 10 years. In egg production, their lives last little more than 18 months. Before they start laying, at between 16 and 20 weeks, the industry refers to them as pullets; once they've laid they become hens.

Chickens are naturally gregarious, social birds who live together in flocks of four to 13 individuals of varying ages. They have a distinct hierarchy, or 'pecking order', where dominant birds have priority over food and nesting sites and enforce their leadership by administering a sharp peck to underlings (Smith *et al*., 2014). Removing hens or roosters from a flock disrupts the social balance until a new pecking order is established.

In commercial egg production this natural order is entirely ignored. Hens are forced into sheds containing thousands of birds or into cages of up to 80. It is an enormous welfare insult and results in stress, fear, bullying, feather pecking and death.

Their natural instincts to roam and be active from dawn to dusk, foraging and scratching, are also denied. Vegetation and tree cover would be their natural habitat in which to seek safety from predators – in fact, they've evolved complicated strategies for dealing with threats, sending out warnings to others in the flock.

They are obviously not long-distance flyers but can fly short hops to avoid danger, overcome an obstacle or to flutter up into the safety of trees to roost for the night.

They have evolved naturally to lay between 20 and 30 eggs a year in order solely to produce young. To do so they will leave the flock and seek out a suitable, hidden nest site – sometimes a new one or even an existing nest lined with fresh material. Hens often have a communal approach to incubating eggs and raising young.

The egg industry is fond of telling you that their natural instincts have entirely been bred out of modern hens but anyone who has ever rescued any knows that this is nonsense – an excuse for institutionalised animal abuse. Within days of being set free they revert to the kind of behaviour we have described here. These extraordinary little animals are still wild at heart.

Photo © Vicky Alhadeff

Chick Production

No commercially produced chicks, whether for eggs or meat, ever see their mothers. The fertilised eggs for chicks which will become egg layers develop inside industrialised incubators in tiered racks of trays, hatching after about 21 days. Chicks use their egg tooth to break out of the shell but in the wild, the mother hen would also help.

After hatching, baby chicks are tipped on to a conveyer belt to be sorted, the sick, weakly and all males – 50 per cent of the total – are rejected and thrown into bins, sacks or crates. All these 'rejects' are then gassed to death. **Forty million day-old, male baby chicks are killed each year in UK hatcheries.**

Selective breeding and genetics have changed the face of chicken breeding. Male egg chicks would once have been kept for meat production but not now. Birds for broiler meat have been selectively bred to reach adult weight in just six weeks whilst egg-laying breeds have been bred for the opposite traits – as skinny as possible to channel all energy into laying eggs. It follows that male chicks born to egg-laying hens can't lay eggs nor grow big enough or fast enough for the meat industry.

Female chicks receive vaccinations and are 'debeaked' at the hatchery before being sent to rearing units. In just one month, 2.6 million baby egg-layer chicks can be transported from UK hatcheries to farms (DEFRA, 2015). These journeys can be very long and result in dehydration, exhaustion and temperature shocks.

'Debeaking', 'beak trimming' or 'beak amputation' is done supposedly to reduce the damage done by chickens pecking at each other – the result of crowded and unnatural conditions at egg farms. Day-old chicks have up to one third of their sensitive beaks, which are rich in blood vessels and nerve endings, removed. It can be by a mechanical cutter with a red-hot blade which cauterises the exposed and bloody beak end but increasingly, a method using a high intensity infrared beam at the tip of the beak is being advocated.

During treatment, the chick's head is firmly held in a rubber holder preventing it from moving for up to 15 seconds. The beam is said to penetrate the hard outer horn and one to three weeks later, the tissue behind the damaged area heals and the beak tip drops off.

No anaesthesia or pain relief is used for either process even though the procedure is known to be painful. Beak trimming can cause difficulty eating

properly later in life, result in deformities and birds may lose appetite because of pain and deformities can result (Davis, 2004; Dennis and Cheng, 2012). Chicks destined for free range, enriched cage and barn units all have their beaks trimmed as standard. Scientific studies have established that the procedure is painful at the time, in the days and weeks following and potentially long-term, depending on the age at which the chick is debeaked. There are studies to show that both methods cause acute pain (Marchant-Forde *et al*, 2008).

A ban on beak trimming in the UK was supposed to be introduced in 2016 but has now been postponed indefinitely after pressure from egg producers (The Poultry Site, 2015) or until 'it can be demonstrated under commercial conditions that laying hens could be managed without beak trimming' (Ares, 2014). Other European countries are not so dismissive and have either banned debeaking or don't use it, including Norway, Austria, Denmark, Sweden, Finland and Switzerland.

Sales Increasing

Egg consumption in Britain has been steadily growing over the past few years with around 33 million being consumed every day – 12.2 billion annually. Some are imported but most are home grown; 10 billion in 2015 (Egginfo website, 2016).

The laying hen is possibly the most abused animal on earth – billions of them churning out eggs day after day, mostly in shameful conditions. Britain's contribution to this number is 36 million who inhabit a shadowy archipelago of enormous sheds surrounded by fences, sealed off from public view (Lawler, 2015).

Viva! went undercover for a year to reveal what life is really like for laying hens, particularly since the ban on battery cages was introduced in 2012. Hours of footage, painstakingly taken by our investigators at enriched cage, free range and organic farms, have provided us with a clear view of what life is like for these birds. No matter what label their eggs carry, hens lead a desperately miserable life.

Due to mounting public pressure, there has recently been a surge in pledges by supermarket giants such as Tesco (around 43 per cent of Tesco's 1.4 billion eggs are currently laid by caged hens each year – Tesco PLC website, 2016), Morrisons and Iceland to go cage-free. Even if they stick to their word though, it will be a long, long time before it happens – 2025! Other supermarkets went cage-free some time ago – Co-operative, Marks & Spencer and Waitrose – but continue to sell non-own branded products which may contain eggs from caged hens. In the US, Walmart and Costco have pledged to go cage-free, as have food giants McDonald's and Nestlé.

Problem solved? Not in the least, according to our investigations. All systems of industrialised egg production are extraordinarily cruel, whether caged, free range or barn.

Enriched Cages

Due to campaigns that outraged public opinion, battery cages were banned in Europe in 2012. Each cage was little bigger than a large microwave oven and housed five hens, each with a floor space the size of an A4 piece of paper. They were replaced with… different cages, laughingly called enriched or colony cages.

They vary in capacity from 40 to 80 hens and each hen must be provided with a floor space of at least 750 sq cm. How big is that? The size of an A4 piece of paper PLUS an additional allowance a little less than the size of a postcard. That's enrichment! Visualise a snooker table with eighty hens on it, caged in and never allowed out.

The birds continue to stand on a sloping, wire mesh floor; they have some perches, a tiny plastic scratching pad and a nesting box which isn't a box but just a couple of flimsy sheets of plastic hanging down, supposedly to provide privacy – no nest, just plastic sheets! Some birds are unable

even to use these sorry excuses for a laying area due to competition from other hens.

Wire mesh floors were standard in battery cages and are a serious welfare assault, the wire being painfully uncomfortable and injurious to stand on. They slope so that eggs can roll to one side of the cage and onto a conveyer belt. The welfare of hens comes secondary to collecting eggs. This is enrichment! It is obscene as our investigation shows.

Failure of enriched cages to reduce frustration, boredom and stress is evidenced by the fact hens are routinely subjected to beak amputation (trimming) in order to reduce their ability to hurt each other.

Enriched cages have been condemned by scientists, experts and organisations such as Viva! as they patently fail to cater for hens' physical and behavioural needs on a staggering scale and impose gross restrictions on basic movements. They can't even spread or flap their wings properly.

The enriched cage units visited by our investigators supply millions of eggs to consumers each week yet revealed conditions and welfare problems so bad that they directly compare with battery cages, which are still widely in use outside of Europe.

The farms we visited are each accredited with the British Lion Quality code of practice, which means they are supposedly subjected to regular and independent auditing by personnel qualified to inspect the farms (British Lion Quality website, 2015).

Footage and stills from our investigation show hens with extensive feather loss, dead birds lying amongst the living, beak mutilation, birds crammed into cages with no privacy or means of escape, air thick with dust, filthy cage floors covered in faeces, birds who appear sick and dying and barren cages. 'Enrichment' appears to make little, if any, improvement to hen's lives (Viva! investigations, 2010-2015).

Despite this depressing situation, just over a half of the 36 million egg-laying hens in Britain today live their entire 'productive' lives in these vertically stacked, enriched cages. They are usually in long lines of up to three tiers high in windowless sheds that house up to 40,000 hens or even more. It's not uncommon that there are multiple sheds on the same site.

With such large flock sizes, weak and vulnerable birds are at the mercy of others in these barren conditions. Despite beak amputation, widespread and sometimes lethal feather pecking is a grim consequence of cage life.

The term 'enriched cage' is little more than a marketing ploy to cleverly deceive consumers into believing that hens experience high welfare and that battery cages are a thing of the past. They aren't and some 18 million hens are enduring them right now. Their only relief will be when they are considered 'spent', are brutally crammed into transport boxes and sent to slaughter, their flesh being used in cheap chicken products.

The Enriched Cage Farms Viva! Visited

K Fresh

Viva! visited a K Fresh enriched colony unit at Withernsea on the East coast of England in 2015 – a company claiming to be 'enriched colony specialists' and have 'invested heavily in the UK adoption of the enriched colony system' (K Fresh website, 2015). They supply retailers with both free range and 'value' eggs.

In one huge, dusty and filthy shed, 20,000 birds were crammed in cages stacked from floor to ceiling. They were beak-trimmed and we saw extensive feather loss.

As with all cages, the hens had no mental stimulation, nothing to occupy them, no privacy and were living on sloping wire floors. We documented dead birds who had been left in cages to rot. We obtained a vet's opinion.

> "*There is marked feather loss and feathers are in poor condition. Possible causes and contributing factors are injurious pecking, abrasion, malnutrition, chronic illness.*"
> Andrew Knight Dip ECAWBM (AWSEL), DACAW, PhD, MRCVS, SFHEA.

> *"This bird has a prolapse of the oviduct. This can be caused by forcing the birds to begin laying when they are too young, trying to pass eggs which are too large, or poor nutrition. A prolapsed oviduct is difficult to treat and causes pain."*
> Dr. Lee Schrader, DVM, veterinary internal medicine specialist

Ridgeway Foods (formerly Stonegate)

Again in 2015, Viva! investigators visited an enriched cage farm in Wolverhampton owned by Ridgeway Foods – one of the largest UK egg suppliers. The conditions were dismal – thousands of beak-trimmed birds living in crammed, filthy cages. Many were suffering feather loss, some had bare patches which were red and sore while others were almost entirely bald. The cage floors were covered with faeces and dead hens were seen rotting beneath the cages.

Bird Bros

Viva!'s Founder and Director, Juliet Gellatley, was amongst the investigators who twice visited this ironically-named 'Sunny Farm' in 2015, owned by Bird Bros, in Bedfordshire. It housed 455,000 hens supplying over 3 million eggs a week to shops, high street multiples, supermarkets, caterers and wholesalers.

It was again a litany of welfare insults – two flaps of plastic hanging down constituting a nest box; severely overgrown claws; thousands of birds suffering from feather loss: and all had their beaks trimmed. Birds lay dying on the cage floor and there were dehydrated corpses left to rot in the cages with living birds. See **www.viva.org.uk/faceoff/eggs**.

Free Range

About 44 per cent of hens in Britain are categorised as free range, with two per cent of these being organic (Egginfo website, 2015a). Competition between companies and high demand have led to falling prices and an increase in flock size to boost output. European legislation permits flock sizes of up to 2,500 birds per hectare which means four birds per square meter (EU Council Directive 1999/74/EC). This includes sheds, outbuildings and other obstructions. In practice, the stocking density is up to nine hens per square meter of usable space (Egginfo website, 2015b).

Free range production looks set to continue growing in size over coming years as an increasing **number of companies have pledged to go cage-free.**

As part of our **Cracked** campaign, we visited a cross section of British farms between February and September 2015 – from the small, selling eggs locally, to major suppliers. Some were organic, Soil Association and RSPCA approved.

Unfortunately, most **free range hens are free ranging in name only**. We know this not only from our current investigations but from past exposés, including Happy Eggs, one of the UK's biggest producers – for more details see: **www.viva.org.uk/cracked/investigations**. This 2010 investigation revealed that the few hens we saw outside on the waterlogged range were scrawny, had poor feather cover and appeared unwell. Birds who would naturally choose to live in small flocks of around ten birds are kept in large sheds with tens of thousands of other hens.

Even without the confinement of cage, overcrowding, injuries, frustrations and death remain. Large stocking densities increase the competition between birds. UK legislation requires small pop holes leading to an open-air range but the recommendation is just one pop hole for every 600 birds (Egginfo website, 2015b). Studies reveal that many hens won't take even one step outside the sheds. One piece of research showed that the maximum number of hens observed outside during daylight hours at any one time was less than 15 per cent of the total flock (Dawkins *et al*., 2003).

The reason birds don't go outside is because the numbers are too great, the stocking density is entirely inadequate, there is too much competition, and birds are generally afraid to cross another bird's territory (Hegelund *et al*., 2005).

Injurious feather pecking remains a widespread problem on free range farms and beak mutilation is the industry's standard solution. A ban on the practice almost came into force, but the industry lobbied hard against it. Chairman of the British Free Range Egg Association (BFREA) stated: *"We must keep lobbying our MPs so that they are fully aware our industry is not ready for this legislation*

to be put into place" (Ranger, 2015). This is a clear admission that free range farming is not all it's cracked up to be.

Free range hens on organic farms have additional standards set out by an approved certification body.

The liberal use of antibiotics in caged hen units, to control rampant disease due to overcrowding, has now contributed to a serious threat to human health from antibiotic resistant superbugs. However, the lack of use of these drugs on organic farms can pose a threat to the hens who endure illnesses that go untreated. Organic hens, of course, end up in the same slaughterhouses as caged hens – a little while after the usual 72 weeks but still very young compared to their natural life span. And day old male chicks are all killed in organic systems.

Buying free range is buying into industrial farming, and an industry that contributes to the 40 million annual death toll of newly-hatched male chicks. It supports a life of misery for hens, painful mutilations, a terrifying journey to the slaughterhouse and a brutal death.

The Free Range Farms Viva! Visited

In appearance, the sheds are similar to those housing hens laying 'barn' eggs. Our investigators found that the hens, despite not being caged, had feather loss comparable to enriched cage hens. It was unclear during the investigation which hens went outside during the day, although studies show that many free range hens never go outside because of high stocking densities, competition for access from other birds and inadequate outside conditions. Hens can be fiercely territorial and will guard the exit holes!

Each farm revealed hens living in the same dismal, hellish environment. At one in Spalding, the air was thick with dust and we observed extensive feather loss and dead birds both inside the shed and in a bin outside.

We sent our findings to veterinarian Dr Andrew Knight, who commented: *"Carcasses represent both an infection hazard and a food source for rats, which can then attack living hens, especially if ill or weak".*

Dr Knight also commented on the widespread feather loss we showed him on free range farms: *"An immediate consequence of this extent of feather loss is an inability to thermoregulate (stay warm) unless fat, but subordinate (pecked) birds might also have less access to food ... another common consequence from persistent pecking is skin injury and ultimately cannibalism".*

An organic free range farm we visited in East Sussex is considered a 'model' farm and has received the Compassion in World Farming Good Egg Award. It also carries the seal of approval from the RSPCA. Whilst conditions were arguably better than on other farms we visited, similar problems were seen – feather loss and the overcrowding of sheds. There was also a hen with a deformed beak and a dead hen lying on the filthy floor.

At an organic, free range farm approved by The Soil Association in Wiltshire, there were two sheds, each housing around 2,000 hens. Birds here were observed with sore-looking, bald patches on their backs and abdomens, possibly the result of a mite infestation. At another RSPCA-assured, organic free range farm in Lincolnshire, birds were housed in a packed shed. Some were balancing precariously on a thin wire running along the rafters, possibly to escape the sea of birds below.

The Happy Egg Company

In 2010, Viva! investigators visited a unit belonging to The Happy Egg Company, part of Noble Foods, one of the UK's largest free-range egg brands. It supplies both free range and caged eggs to the major supermarket chains. The company describes itself as being 'independently monitored for welfare' by the RSPCA, has received the industry's leading accolade – The Good Egg Award from Compassion in World Farming – and is a member


Glenrowan farm

of the European Animal Welfare Platform (Noble Foods website, 2015).

Phew! But in fact the hens we saw bore little resemblance to the company's massive advertising campaign. Even their workers admitted that the adverts and the reality were very different. Viva! filmed hens packed in sheds or outside on muddy concrete, wading through water. There were masses of hens crowded around pop holes and refusing to go outside. 'Environmental enrichment' outside did not include the swing shown in adverts (a gimmick, said a worker); sandpits were water-logged, paddling pools were dirty.

The majority of birds remained inside the sheds and workers confessed that they dissuade the hens from going outside to lay as it increased their workload. One shed housed 7,800 birds in such poor conditions that some were practically bald. Despite beak trimming, feather pecking was widespread.

One shed was heavily infested with red mites and at least one bird was dead and another so ill she was unable to walk. This hen was abandoned to a so called 'sick pen' and left on bare wire mesh with other ill and injured birds.

Inside the sheds, hens were shocked into compliance with electric wires. Because of the overcrowding, they were shocked apart to prevent deaths from smothering and to deter them from defecating near feeders and drinkers. Electric shocking is prohibited by the RSPCA, however, a worker told us on camera that RSPCA inspectors would be lied to when they visited, being told the electric wires were always turned off.

Glenrowan Farm Eggs

Again in 2015, we visited a free range and barn unit – Rowbottom Farm – in Spalding which supplies eggs to local retailers. The windowless shed was crowded and dirty and despite being daylight, no hens were outside. The floor inside the shed was gridded metal making it painful to stand on and the air filthy and dusty. Most hens suffered extensive feather loss and dead birds were filmed inside the shed and also piled in a bin outside which was swarming with maggots and flies.

The sad reality is that many of these free-range birds are unlikely to ever see the sunlight or walk on grass.

For more information about Viva!'s egg investigations, go to www.viva.org.uk/cracked/investigations

The health of hens

Physical demands on chickens have increased remarkably since the 1950s as productivity and efficiency have become the driving forces behind egg production. Selective breeding, movement restriction, intense lighting and high protein feed have resulted in hens laying over 300 eggs a year. The result for them is a depletion of their natural reserves of calcium and phosphorous, which can lead to skeletal defects, rickets, osteoporosis and fractures.

Despite their pelleted food being supplemented with granular calcium, they simply can't consume enough to meet the calcium demands of their almost daily egg shell production. If a hen is calcium deficient, it will be released from her bones which can quickly lead to osteoporosis – a condition where bone density diminishes and bone structure deteriorates, making bones fragile and prone to breaking (Hester *et al*., 2013). Bone fractures are the main cause of suffering in farmed chickens – exacerbated by rough handling and transport to the slaughterhouse.

Another common health issue is fatty liver disease caused by having to eat large amounts of food to meet the demands made on their bodies. Fatty liver haemorrhagic syndrome results when large amounts of fat are deposited in the liver and abdomen, which can lead to an enlarged liver that is easily damaged and prone to bleeding. This condition can be fatal due to internal haemorrhaging when the hen is straining to lay her egg. It is one the major causes of mortality in laying hens (Ma *et al*., 2014).

Egg farms are also prone to red mite (*Dermanyssus gallinae*) infestations – blood-sucking parasites that cause extreme skin irritation, reduced feather quality, skin inflammation, weight loss, anaemia due to blood loss, feather pecking and even cannibalism. Extreme infestation can result in death. The nocturnal behaviour of red mites, which suck the birds' blood during periods of darkness and hide in gaps and cracks during the daytime, means their complete eradication is difficult and an infestation can cause extreme restlessness and stress for birds, particularly at night.

Most egg-laying hens are unable to perform even the most basic behaviours – including flapping their wings, dustbathing or perching.

The conditions at egg farms are so demanding that hens are usually 'spent' at around 72 weeks – a year and a half old. Spent means their egg laying has declined to an unprofitable level. Many don't even make it this far and die on the farm, often left to rot unnoticed for days. Those who are sent to slaughter are grabbed by catchers working at maximum speed and roughly thrust into transport crates. Their fragile state is not a consideration.

They endure the same end as broiler (meat) chickens – being shackled upside down by their feet, stunned by having their heads immersed in an electrified water bath (which some will miss), having their throat slit followed by scalding, with some still being conscious. An increasing number are killed by gassing with a mixture of gasses but including CO_2, which is not instant, is aversive and causes desperate panic as birds fight for air.

At the end this 18-month process of abuse, the bodies of egg-laying hens are turned into processed chicken products such as pies, pasties, soups and stock cubes.

The Truth About Assurance Schemes

There is a number of quality assurance schemes in Britain which were established supposedly to give consumers confidence in the products that carry the stamp of approval and assure them that animals have been reared to good welfare standards. Repeated exposés of farms sporting these assurances show that often they aren't to be trusted.

RSPCA Assured

RSPCA Assured (formerly Freedom Food) is the RSPCA's farm assurance and food labelling scheme. It does not approve of cages for egg-laying hens, only free range and barn units. This label doesn't guarantee anything else apart from cage-free eggs. During our investigations we visited RSPCA assured farms and what we saw was deeply depressing *(see pages 16-17).*

Red Tractor

One day in 2000 there was no Red Tractor assurance scheme and the next day there was and the majority of farms in Britain qualified for it simply by filling in some forms. It offers barely the legal minimum conditions where animals are concerned and those who transgress the standards face no fines or punishment.

It claims to 'promote clearer labelling and ensure food originates from a trustworthy source' (Red Tractor website, 2015). In truth, it simply guarantees the product is legal.

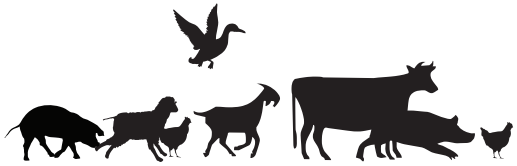
The Red Tractor symbol does not guarantee that a product has a British origin. Only a tractor symbol in conjunction with the British flag indicates a product is from the UK.

British Lion Quality Mark

British Lion Quality means simply that eggs are produced to minimum legal food safety requirements, nothing else. In other words, the baby chicks are vaccinated against salmonella.

Soil Association

According to the Soil Association, animals housed on organic farms should have access to fields, plenty of space, a non-genetically modified (GM free) diet and should be given drugs only to treat illnesses (Soil Association website, 2015). But access to fields does not necessarily mean the hens go outside. As with other schemes, male chicks are still a waste product and spent hens face a similar end to those in other systems.



A Happy Ending

The Farm Animal Sanctuary, Worcestershire

www.thefarmanimalsanctuary.co.uk

Viva! runs an adoption scheme with The Farm Animal Sanctuary which includes rescued egg-laying hens. Animals can be adopted for just £25 a year, which is split between caring for the animals at the sanctuary and Viva!'s campaigns to end cruel farming. Viva! saves animals by getting people to change their diet while the sanctuary offers a safe haven to animals who have suffered.

Visit **www.adoptafarmanimal.org.uk for more information.**


Dahlia before

Dahlia and Brenda

"Our first 60 ex-caged hens arrived looking a very sick and sorry little crowd. Few feathers, beaks badly trimmed, some so badly they had difficulty in eating. It took several days for the bravest one to venture through the door and out onto the grass. She lifted her feet very slowly and gingerly, it was the first time she'd seen grass in her entire life.

"Within days the others followed her out. In a few days they grew to know when it was feeding time and treat time and would crowd around the gate waiting for someone to appear with the buckets. They soon discovered the best spots to find worms and insects, indulged their natural instincts to forage, have a dust bath and stretch out in the sun – doing all the things that had been denied to them since hatching.

"Two of them were slow in growing back their feathers so were brought to live in smaller houses next to the sheep barns. One of them, Dahlia, developed a passion for flowers. She would sneak through the gate into the house yard, jump into the nearest flowerpot and proceed to slowly remove all the petals one by one, stopping only to have a little sleep before finishing the job. After that, she would hop up onto the window ledge and stare at Rocky the parrot until she had to be forcibly removed.

"Her friend Brenda had a different hobby. After breakfast, she would fly over the gate into the sheep barn to spend a few hours sitting on Nana, her favourite sheep. Not only did this keep her feet warm but she could always find small treats in Nana's fleece, bits of oats and barley dropped by other sheep. No other sheep would do as a cushion though, it had to be Nana!"

Janet Taylor, Farm Animal Sanctuary Founder


Brenda and Nana


Dahlia after

Finally...

Cutting eggs out of your diet is the kind, healthy choice. There are countless delicious recipes that don't need eggs and for those that do, there are many alternatives. Going vegan is easier than many people think and brings a wealth of benefits to your life. All it takes is one decision and the will to change. We have evolved to thrive on a plant-based diet and millions of people are going vegan every year, join the crowd!

Viva! can help you to make the change with a great range of recipes, advice and support.

For more information on the egg industry, please see Viva!'s report *Laying Hens: The Inside Story* and other resources at **www.viva.org.uk/cracked**.

For more information on diet and your health, go to **www.vivahealth.org.uk**.

For egg-free recipes, visit **www.veganrecipeclub.org.uk**

See Juliet's visit to egg farms and a sanctuary here: **www.viva.org.uk/faceoff/eggs**

Hug a Hen

www.viva.org.uk/hug-a-hen

Viva! believes it's time we started seeing hens and other animals not as commodities but as individuals with complex personalities and a right to live free from suffering and harm! If you have hens, know someone who does or can visit a sanctuary which cares for hens, please take a fascinating picture of a hen, either with you in it or without. Then share it with us and tell us about your hen! It may be one with a special personality or a heart-warming story about her. Help us show how full of personality and huggable hens are!

Send your Hug-a-Hen pictures and stories to **hugahen@viva.org.uk**.

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Viva! £1.50

ISBN 978-0-9571873-6-8

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