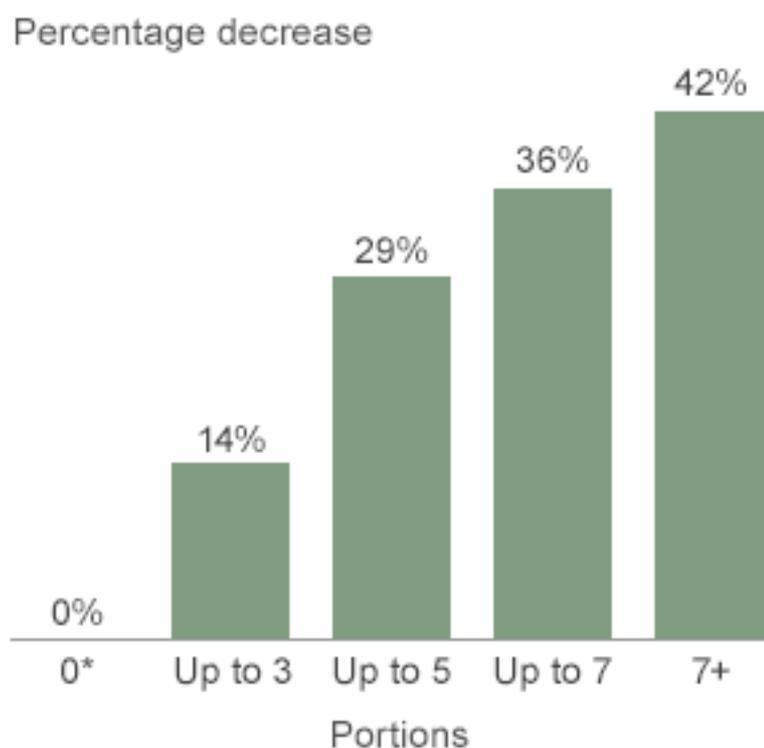


Which are the best fruit and veg?

How much fruit and vegetables should we eat and which are most beneficial to your health? Discoveries that the plant world provides salvestrols which ward off cancer, sirtuin activators which help burn fat, as well as antioxidants and polyphenols which reduce inflammation and disease risk has led to a whole rewrite about which fruits and vegetables are best to choose.

In terms of quantity the answer is seven. A survey of 65,226 people in the UK showed that having 7 or more servings of fruit and vegetables a day is associated with a 42% reduction risk of death. This parallels our 100% health survey findings of 55,000 people which found that having 5 or more servings of fruit a day tripled one's chances of being in optimal health, while 5 or more servings of vegetables doubled one's chances.

How fruit and veg intake reduces risk of death



*0 portions = 0%

Source: Journal Epidemiol Community Health

Another [survey](#) last year, carried out by researchers at the University College London, found that vegetables conferred a greater health benefit than fruit.

While 2 or 3 servings of vegetables a day cut risk of death by 20% the same number of servings of fruit cut risk of death by 10%. Fruit juice and canned fruit conferred no benefit and even a suggestion of harm, no doubt due to the high sugar content, including syrups in canned fruit.

On the basis of all the evidence to date it is best to shoot for 7 servings a day, being 4-5 servings of vegetables and 2-3 of fruit. This, for example, means a serving of fruit with breakfast, half of each main meal (2 servings) as vegetables and 2 further servings during the day, as snacks, of either fruit or vegetables. This could be half an avocado or an apple with a few nuts or seeds. Combining protein with fruit or vegetables further lowers its glycemic load. But which fruit and veg are best?

Rich in antioxidants

If we had been having this conversation a decade ago I would have spoken about the antioxidant power of different fruit and vegetables, that is their ability to quench oxidative damage which underlies the whole ageing process, as well their GL (glycemic load) choosing fruits and vegetables with the least glucose-raising effect and the most antioxidant power. Berries, plums, apples, oranges, broccoli, cabbage, asparagus, avocado and artichoke would have been top of my list on both fronts. While red grapes are high in antioxidants they are also high in high GL sugars. There exists a good index of the total antioxidant power of fruit and vegetables, measured as the ORAC (oxygen radical absorption capacity) of a food. The chart below gives you some of the top ORAC star foods. My special report on [antioxidants](#) gives you more info on top ORAC foods.

1	1/3 tsp Cinnamon, ground	11	7 Walnut halves
2	1/2 tsp Oregano, dried	12	8 Pecan halves
3	1/2 tsp Turmeric, ground	13	1/4 cup Pistachios
4	1 heaped tsp Mustard	14	1/2 cup cooked lentils
5	1/5 cup Blueberries	15	1 cup cooked Kidney beans
6	1/4 cup Cherries or a quarter shot of Cherry Active concentrate	16	1/3 medium Avocado
7	1/2 cup Blackcurrants & berries, raspberries, strawberries	17	1/2 cup of red cabbage
8	Half a pear, grapefruit or plum	18	2 cups of broccoli
9	An orange or apple	19	1 medium Artichoke or 8 spears of asparagus
10	4 pieces of dark Chocolate (70% cocoa)	20	1/3 medium glass (150ml) Red Wine

Source: Oxygen Radical Absorbance Capacity of Selected Foods - 2007, US Department of Agriculture

Polyphenol power

However, in recent years, there's been lots of research showing that a group of compounds known as 'polyphenols' are just as important as a plant's antioxidant power and maybe more so. Polyphenols are rich in many 'superfoods' such as resveratrol in red grape skin, isoflavones in beans, curcumin in turmeric, cinnamic acid in cinnamon and anthocyanidins in black elderberry and other berries, to name a few.

Polyphenols are a very broad group of compounds that are produced by plants as part of their defence system to protect the plant, for example, from infection or UV radiation. These often protect us from infection, cancer, but also, in a highly intelligent way, seem to switch off disease processes and switch on healthy genetic switching that help us stay healthy and live long.

Many of the phytochemical names you will have come across, such as flavonoids, quercetin, anthocyanidins, isoflavones, to name a few, are all types of polyphenols.

For sake of ease we can lump these all together and work out a total polyphenol rating, in much the same way that I've previously given foods a total antioxidant rating. While not perfect this does help us to understand which foods from the vegetable kingdom pack the biggest health punch.

By seeing which foods have the most antioxidant power AND the most polyphenol power we can get a good idea of the best foods. Since quite a few polyphenols act as antioxidants there is a tendency for a food to score high in both camps, but some foods don't. Peppermint, for example, is good for polyphenols but not so remarkable as an antioxidant. Basil is the other way round – good for antioxidants, but not great for polyphenols. Here my favourites.

BEST FRUITS & VEG FOR BOTH ANTIOXIDANTS & POLYPHENOLS

VEGETABLES

Artichoke, red onion, broccoli, asparagus, spinach, olives, beetroot*, avocado*, kale*, parsley and lovage

FRUITS

Blackcurrants, blueberries, plums, blackberries, raspberries, strawberries, cherries, apples

NUTS

Chestnuts, pecan nuts, almonds, chia, flax

HERBS & SPICES

Cloves, oregano, turmeric*, capers, mint, star anise, sage, , rosemary, basil, thyme, ginger, curry powder, cinnamon

OTHER

Dark chocolate, red wine, coffee, peppermint (tea), black tea, green tea

*Turmeric, beetroot, kale and avocado, which is technically a fruit, do not appear in charts of polyphenols, but both do contain significant amounts, and are also high in antioxidants, hence my inclusion.

Skinny sirtuins

Certain plant compounds also activate 'sirtuin' genes, nicknamed the 'skinny' genes because they help you burn fat and build muscle. A body of evidence is now building for a number of potent sirtuin activators, many of which are also classified as polyphenols. The first identified was resveratrol in the red skin of grapes and peanuts. Others include green tea, cocoa powder, turmeric, kale, onions, especially red onions as a source of quercetin, olives, parsley and lovage. While many fruits and veg do contain sirtuin activators the levels in

common foods such as tomatoes, lettuce, kiwi, carrots and cucumber are relatively low.

Anti-cancer salvestrols

Nature cures for cancer have often involved large amounts of specific fruits and vegetable juices. Why this could work only became clearer when a group of naturally-occurring plant compounds, called salvestrols, were discovered in 1998 as a result of the combined research of Professor Dan Burke, a Pharmacologist who has published over 200 scientific papers, and Professor Gerry Potter, Professor of Medicinal Chemistry and Director of the Cancer Drug Discovery Group at Leicester's De Montfort University.

After analyzing many kinds of food, his team found that there are dozens of natural polyphenol molecules similar to resveratrol that are found in common foods and plants and some that have an even stronger anticancer activity than resveratrol. Salvestrol is a new name he coined to describe this group of natural compounds from the Latin word 'salve', meaning to save. The formal definition of a salvestrol is "a natural dietary anticancer prodrug". The Salvestrol molecules themselves are not new - since their chemical structures and the plants in which they occur have been known for many years – but never before have these chemicals been grouped together on the basis of this particular set of recently discovered anticancer actions¹. The key feature of salvestrols is that they are activated only inside cancer cells, into compounds that can kill the cancer cell. The anticancer effects are due, not to the plant chemicals themselves, but what they turn into within the cancer cells due to the presence of a specific enzyme, called CYP1B1, which is only found in cancer cells.

Since plants cannot run away from predators and pathogens, they defend themselves by chemical warfare. Plants can make chemicals that act as attractants and repellents. The repellents are anti-microbial defence chemicals, in other words they are synthesised in response to microbial attack and fight off microbial pathogens such as fungi (mould) or bacteria. Examples are phytoalexins in oranges and bilberries and resveratrol in red grape skins. These are both types of salvestrols.

When ripe fruits and vegetables are attacked by fungus, which happens all the time, they develop such salvestrols as a natural defence. When we eat the plants, the salvestrols in the food trigger an enzyme found only in cancer cells to produce piceatannol, which then attacks the cancer. Potter believes that salvestrols are our inherent rescue mechanism that can kill cancer cells before they have a chance to develop into tumours, possibly explaining the protective effects of a diet high in fruits and vegetables.

Salvestrols are found most abundantly in red and green fruits and vegetables, and are especially high in organic produce. The use of fungicides, for instance, dramatically reduces a plant's production of salvestrols.

The problem is not only that we don't eat enough of these foods, but also that modern varieties of fruits and vegetables have selected those that taste sweet and don't taste bitter, yet often salvestrols are bitter. For example, it's the bitter taste in olives that defines its salvestrol effect. But then there's another problem and that is the use of fungicides which inactivate salvestrols, hence the need to eat organic.

Salvestrols are thought to be in at least 50 plants. The table below shows the 27 tested to date that are particularly good sources. It is important to realise that the Salvestrol concentration depends very much on where and how the plant is grown and the particular variety of fruit or vegetable.

SALVESTROL RICH FRUIT AND VEG

Fruits	Vegetables	Herbs
<ul style="list-style-type: none"> • Apples • Blackcurrants • Blueberries • Cranberries • Grapes (& wine) • Oranges • Strawberries • Tangerines 	<ul style="list-style-type: none"> • Aubergines • Artichokes (globe) • Avocado • Broccoli • Brussels sprouts • Cabbage • Cauliflower • Olives • Red/yellow peppers 	<ul style="list-style-type: none"> • Basil • Dandelion • Milk thistle • Mint • Parsley • Rosemary • Sage • Thyme

Since salvestrol activity is primarily coming from polyphenol compounds in plants this list is not greatly different to polyphenol rich fruits and veg.

Our all-round top dozen fruit and veg

Taking all these factors into account – the GL, antioxidant, polyphenols, salvestrols and sirtuin activators – these are my dozen best rated fruit and veg. But do not think of this list as definite as more and more research reveals reveals the amazing healing power of nature’s fruits and vegetables.

	Lowest GL	Antioxidant	Polyphenol	Salvestrol	Sirtuin Act.
Olives	***	***	***	***	***
Blueberries	***	***	**	***	***
Kale	***	**	***	***	***
Blackcurrants	**	***	**	***	***
Broccoli	***	**	***	***	
Artichokes	***	**	***	***	
Cabbage (red)	***	***	**	***	
Asparagus	***	**	**	***	
Onions (red)	**	*	***		***
Avocado	***	**	**	***	
Apples	**	**	**	**	**
Beetroot	*	*	***		
Cherries	**	**	**		

However, it is also important to eat turmeric, cinnamon, oregano, parsley or lovage, mint, basil, ginger, dark chocolate or cocoa and drink tea, ideally green.

ⁱ Potter, G.A. & Burke, M.D. (2006) Salvestrols – Natural Products with Tumour Selective Activity. *Journal of Orthomolecular Medicine*. 21(1): 34-36.