

Ultra-Processed Food - the buzzwords of 2023

Who am I?

I am not a professional dietitian. However I am trained and experienced in scientific and other research including identifying reliable sources and synthesising what they say. For some decades I have followed developments in dietary advice both for my own diet and as part of a dietary database application. When learning, I adopt Richard Feynmann's idea of fixing it in my head by writing it down as though explaining to a child of eight. Hence this document, which I have put here in case someone else might find it useful.

What does processed mean?

As it says in the title, ultra-processed food (UPF) is the buzz-phrase of 2023. It was invented by Carlos Monteiro in 2009. He devised a naming scheme of four levels of processing. Despite that, the more I learn about UPF the more difficult I find it to sort out in my head. Picking and eating a blackberry from a hedgerow is unprocessed. Surely digging a carrot out of the ground and then eating it is unprocessed food? Unfortunately not. Our carrots are far from natural. They are the results of thousands of years of selective breeding and are probably sprayed to kill root fly. What about the native wild potatoes of the Andes? No. Most of those are dried after harvest and rehydrated when needed for cooking. Let's give up then, and accept that nearly all food is processed to some degree.

Can we define 'processed' precisely? One meaning is taking raw ingredients like vegetables, meat, spices, or herbs and changing them using some sort of manufacturing process. Of course home cooking from a recipe must also be called processing but the food is usually consumed straight away and the cook chooses what things to use.

Ultra-processed

The key word then becomes 'ultra', which implies an unacceptable, and possibly dangerous, level of processing. At what point can we use the word? Again there can be no definable point. All we can do is learn about the dangers and avoid them as much as possible. Ultra appears to mean adding non-food, artificial substances, or processing in a way that produces them. Let's clear up one mis-used word - chemicals. Everything is made of chemicals, including our bodies and raw food. The only exception would be a pure metal dug out of the ground that we would call an element. I can't think of an alternative word so let's use substance and the names given to the types of substance used, such as preservatives, sweeteners, flavours, colours and emulsifiers. What are the aims of these substances? They stop food going bad too quickly, reduce sugar calories, add new flavour and colour or restore what is lost in processing and they change the texture of the food.

Effects of cooking processes

Cooking changes food by breaking or softening some of its structure and by adding new surface and sauce flavours. This can reduce the number of essential vitamins and other nutrients. It can also increase the available calories. Some think that your jaw muscles use more energy chewing a stick of raw celery than you get out of the celery you have eaten. Frying, roasting or grilling can add flavours to fruits, vegetables, fats, starches and sugars by an effect called the Maillard (My-ard) Reaction, making those delicious brown surfaces. Some think that the chemicals, such as acrylamide, produced when this is done at high temperature can be harmful though the truth is uncertain. It is probably wise to keep temperatures down if possible, with 165°C being a generally agreed compromise for deep frying.

Packaging

And then there is food packaging. Bisphenol A (BPA) is an industrial chemical used to make some plastics, such as the polycarbonates that are often used for containers for food and drinks, such as trays and bottles. BPA leaches into food, though mostly when heated in an oven or microwave or by direct sunlight. It has been connected with many bad effects such as reduced fertility, poor foetal development, poor behaviour in children, high blood pressure, type 2 diabetes and cardiovascular disease. You can spot packaging with BPA as it is usually given recycling codes 3 or 7 that are embossed into the plastic.

Traditional and new processes?

Some processes are benign or beneficial, such as putting stuff in tins, freezing raw ingredients, pickling, salting, bottling with or without sugar, air-drying and sun-drying and fermenting such things as sauerkraut, wine, cheese and yoghurt. Where things can go wrong for us is when the word 'ultra' is added. This implies an industrial type process that involves artificial substances and usually makes the ingredients label two or three times longer.

What risks do they pose to us?

If we have enough of any substance it can probably kill us. Some have what is known as LD50 (lethal dose with a 50% death rate) in a target animal group. Anything we eat or drink might do us harm if we take in enough, even pure water. The key thing to find out is what effect a low dose will have over a long period. The simple fact is we don't know until harm has been caused. Some are harmful in combination, which cannot be tested due to the large number of combinations. Almost every week another substance comes under suspicion, notably sweeteners at present, with aspartame as most suspect, though sucralose (Splenda) is pulling level on the rails. The sodium salt used to cure, pickle or preserve can raise blood pressure to a dangerous degree in some people.

Sweeteners

Why sweeten tea and coffee? They taste so much better without. If we cook with fruits we might want to sweeten the food but first check if it is needed. I

have decided only to use sugar rather than sweeteners and experiment to get the level down. Years of eating over-sweetened food and drink distorts our palates but you can put this into reverse and start to enjoy the natural flavours.

I avoid artificial sweeteners. The Mayo Clinic lists eight and says that risks are probably low, but admits there is no certainty. The problem is who to believe. Medscape, a reliable reference source for US medics, has included studies that suggest some harmful side effects from some sweeteners and some critiques of the studies and the data. It is important to avoid conspiracy theories about who pays for study or refutation, but if there is some doubt, and I don't need to avoid the calories from the little sugar I eat, why not wait to see what the truth is before eating or drinking the stuff?

There is a new sugar replacement called allulose. This low-calorie sugar has been naturally discovered in small quantities in plant foods such as brown sugar, maple syrup, jackfruit, figs, and raisins, but it is yet to be approved and of course might be different if made in large quantities. Xylitol, erythritol and sorbitol are sugar alcohols which might have even fewer risks, but that is again yet to be seen.

In the end if something needs to be sweetened I use sugar or honey. No one sugar is better or worse than any other and good honey can have health benefits. The main thing is not to have a lot, unless you are exercising vigorously.

The killer whites

In the last century this was a phrase used to describe white sugar and wheat flour, sometimes called 'refined'. Killer whites featured most notably in Mike Leigh's brilliant 1976 film *Nuts in May*.

Sugar is sugar and the colour really doesn't matter. Its benefits are ready and rapid energy and its flavour. Its dangers are rapid digestion into the blood stream and getting fat if you regularly have too much.

Wheat flour is more complicated. Mass produced white flour has had many nutrients removed during processing and has little fibre. There are however many wholemeal white flours where this is not true. Where the whole seed is used you find names like wholemeal, wholewheat, stoneground and so on. There is no doubt that wholemeal flour is best for your health, but a reputable white flour is fine for more delicate bakes.

Now we come on to bread. The Chorleywood Process, devised in the UK in 1961, speeded up factory bread making and can make use of low-protein UK wheat instead of imported hard (durum) wheat. It has made such bread relatively cheap and is used to make about 80% of all bread in the UK. Some think that the texture and flavour is inferior and there is evidence that it increases irritable bowel syndrome. I don't eat these breads but it means that I have to pay at least twice as much. You must make your choice. I liked the way that Joni Mitchell described something that was mediocre. 'It all goes white bread.'

Fats, oils and marga

So much nonsense is talked about fats and oils. If you eat lots then you are taking in lots of calories and might get fat. I always cook with oil, usually sunflower, and use olive oil in dressings. Sunflower and other light vegetable oils can be used at higher temperatures than olive without creating risky by-products. Meat without fat is low in flavour when cooked. Look at the fat-veined structure of Japanese wagyu beef, said to be most flavoursome in the world.

One potential danger is from manufactured fats. Margarine was invented in 1869 for Emperor Napoleon III's soldiers and for the poor. One technique involves bubbling hydrogen through liquid oil or fat until it hardens. A few years ago we were alerted to the dangers from 'trans fats'. These are low density manufactured fats that appear likely to cause arterial clogging and other maladies and were, or possibly still are, used a lot in processed foods. It is always worth checking for its inclusion.

That leads us on to cholesterol. There is an article about that elsewhere on this website. In summary if you have high cholesterol, say six or more, ask your GP if you should take statins. Remember that high density cholesterol is good and it is the low density cholesterol that causes the problems, so when tested don't accept a single number for cholesterol. Cholesterol is made naturally in the body and is used by it to produce many hormones including testosterone, so there might be side effects with statins.

And finally rape seed oil (canola). Those yellow, fragrant fields of plants that appear in the spring result in small pods containing oil-bearing seed. I believed that the oil was relatively unprocessed until I read Henry Dimbleby's book, *Ravenous* (described later). He explains that cold pressing only releases 75% of the oil from the seeds and the result is smelly and yellow. To end with colourless and odourless oil requires a lot of processing. In the book I counted eight stages that involved the use of hexane, caustic soda, clay and silica. He doesn't say that it is dangerous. Only that it is highly processed.

What can we do about it?

Eat mostly home cooked food starting with raw ingredients. Store and reheat food in ceramic or glass containers. Avoid foods that include a long list of mysterious additives. Don't eat the nasty snacks that the food peddlers insist we need between meals. Assume that food adverts mislead. They almost always do. Don't worry about eating tasty UPF stuff occasionally. Ignore all information about food on soshul meeja, especially from 'influencers', which must be the most malignant word of the 2020's.

Before the UK joined the European Common Market (which is what we were then told we were joining) we had a system of farm subsidies that made fresh foods cheaper. I know because I was very hard up at the time but could still afford for my family to eat properly. Once in the Market the food subsidies in the Common Agricultural Policy (CAP) put up the price of food to 'support' the farmers. I remember that too. The success of the CAP resulted in surpluses given names like 'wine lake', 'beef mountain' and 'butter mountain'. A lot of the last was sold off to the USSR for next to nothing or given away to the

Common Market 'deserving poor'. These expensive surpluses continue to this day, though of course they are a valuable insurance against famine.

Meat, vegetarians and vegans

UPFs must be a worry for vegans, or should be. Cooking using only fresh plants is fine but limited. I know because I sometimes cook and eat vegan meals, but I only have a very few recipes with an acceptably interesting flavour. Vegans are tempted to eat imitations of more common foods, for example in the form of chicken nuggets or sausages, made from industrially-grown meat or modified plants or fungi. All of these are processed foods and many are UPFs. Due to lack of certain nutrients, vegans are advised to take supplements, including vitamins B12 and D, calcium and haem iron. I admire their motives but fear for their long-term health.

I could become a vegetarian, but I don't want to as it would restrict my choice of recipes. I have a large number of healthy recipes, many including meat. If you look at human teeth and gut it is clear that we evolved to be omnivorous. Our enormous and energy-hungry brain probably wouldn't have emerged without high-calorie meat. We must choose how much meat to eat and how the animals are looked after. So far as I can, I buy meat from local sources that I know care for their animals. I eat much less meat than most people. Humans are also the only species that worries about the ethics of killing for survival, and that is very much to our credit.

Many years ago I learned about oriental cooking and became an enthusiast. It uses meat in much smaller proportions, or did, and lots of whatever vegetables are plentiful and fresh. It also doesn't waste any part of an animal. I attended a two-day master class in Chinese cooking given by chef/professor Xu Zhengcai of Shanghai University. I and a mate were the only ones to try his stir fried sea cucumber. Later I learned that Thai cuisine is more about techniques than recipes, again using whatever is around.

Reasons to become a vegetarian

Eating meat is an inefficient way to feed ourselves. Many current methods of rearing animals are cruel though farmers in the UK are commendable for not using most of them. Eating large quantities of red and processed meat can cause bowel cancer. However meat is delicious and there are some nutrients only found in meat. George Bernard Shaw was an early and famous vegetarian. When asked what it was like he said, 'Wet and windy'.

Crops are used for three things - human food, animal food and biofuel. For now there is plenty of food being grown. People presently starve because of their awful governments, though climate change might soon add water shortage too. Better run countries have shown themselves willing to help out with food aid even though they know that some of it is likely to be stolen by the people in charge. It is a wonderful human characteristic to be so caring.

More than half of all food grown, mostly soya and maize, is used to feed animals. 100 units of vegetable energy becomes 12 units when turned into chicken and 3 when rearing beef. Accurate numbers are difficult due to national

habits, and the lack of recording in many countries. The best I have found from several reliable sources is that humans eat 25 - 50 %, animal feed uses 40 to 70 % and biofuels around 10 %. Animals also graze but that is excluded from those numbers.

Meat additives

Some countries, notably the US, allow the use of growth hormones and antibiotics to increase the weight and food efficiency of the animals. That is meat I don't want to eat. In the UK we should be able to rely on food labels but, as we found out with the horse meat scandal, even reputable suppliers can't always be sure of the source of the meat. I am lucky enough to have butchers nearby who guarantee the sources of their meat and what additives the animals have eaten. Grass fed animals are probably fine - Welsh lamb for example or the male calves I hear lowing in a field near me. In the end I do my best to buy good meat. The occasional sample that is below what I expect won't do me any harm.

There are risks even for people who take care not to eat UPFs

Here there is ambiguity. It is likely that preservatives prevent us getting ill, and there are some fresh 'wholefoods' that can make us ill. It doesn't happen very often, fortunately. Unpasteurised milk ('raw milk'), or cheese made from it, very occasionally causes salmonella, e-coli, campylobacter or listeria infections, usually not serious enough to kill. Why do people eat such cheese? Because it tastes better, or so I think. Bovine Spongiform Encephalopathy (BSE), also called Mad Cow Disease, caused a lot of problems in the UK in the 1980's and 90's, though in the end few people died of it. Unwashed salads, vegetables and fruits might have bacteria on them from the pickers' hands or organic fertilisers used on the crops. Unlike UPFs, none of these usually have any long-term effect on our health.

How do I know if I have a healthy gut?

To cover this I must use plain, descriptive words. The English are very prissy about their bodies and bodily words. We have plenty of opaque euphemisms, and lots of foul words, but refuse to accept simple, explicit terms. George Orwell said, in his essay 'Politics and the English Language', that we should stop using the long and complicated words derived from Latin and Greek, and go back to our original direct Anglo-Saxon words. I agree but I think most English people and all soshul meeja would not.

Pushing my luck, I will use the word 'turd' to describe a solid piece of faecal matter (sorry about the latin spelling). The anglo-saxon word sh*t is probably a step too far, though of course you just said the word in your head so what difference does the asterisk make? In his delightful series of stories about 'Uncle Mort', Peter Tinniswood came up with some delicious wit. 'Carter', says Mort to his nephew, Carter Brandon. 'Why are turds pointed at one end?' 'I don't know.' 'So your arse doesn't snap shut, Carter.'

A healthy gut produces one reasonably large turd each day, plus others, in one or more sessions. It should be of good shape but not be hard. It should not

need forcing out with abdominal pressure. A veggie turd will have little smell and what there is should be sweet. If you have had lots of meat it might smell more rotten. Food should take no more than a day to go through you (transit). You can check this by looking for undigested stuff from yesterday's food, such as seeds and skins. So if the above isn't you then change your diet before it is too late. Brits have a long tradition of constipation due to over-cooking food and not eating enough fibre. It is why they can never see the point of bidets, so beloved by the French who have, or perhaps had, a much better diet. Instead they wipe themselves with paper, which I approve of if it is the Daily Mail. Viz magazine calls good turds 'Tom Daleys'. Like the famous diver, they enter the water silently, then often turn and re-ascend invisibly into the WC's U-bend.

So what if that isn't your regular output? The wise ones tell us that constipation is usually the result of too little fibre or fluids or both. They also say don't start swallowing branded cures but just try eating more vegetables that are less softly cooked, more fruit and more legumes such as chickpeas and kidney beans and eat bread that is made with wholemeal flour. Coupled with drinking more water in the form of tea, coffee and just ... er ... water, and less booze, that should fix it. It might take a while to get your gut filled with the right bugs, and did you know that over half of each turd is made of those bugs, now called gut biome. If it doesn't work talk to your doctor. If you are having other symptoms described in such websites as the NHS, Macmillan or Cancer Research UK, then don't wait before phoning your GP.

The F-Plan Diet

In 1982 Audrey Eyton published 'The F-Plan Diet'. That book was a turning point in my eating. So for 40 years I have followed its principles of eating plenty of fibre and very likely she has extended my life and health. Its ideas are still current and it is well worth buying and reading. My profound thanks to Audrey.

A neglected UK generation

On the BBC Radio 4 programme Woman's Hour on 21st June 2023 we learned some chilling facts about the effects on our children of UPFs and other poor food. There were two excellent speakers, Anna Taylor from the Food Foundation and Henry Dimbleby, co-founder of the Leon restaurant chain, government adviser and the author of the radical National Food Strategy and a book titled 'Ravenous' with Jemima Lewis. This extraordinary book should be read by everyone. It packs in so much information about how humans are harming our planet and ourselves through our rapacious appetites, but it is not a doomsday book, in that it shows us what we can do about it. I have reviewed the book elsewhere on this website. You will find it in the main menu item Our beautiful planet.

Now back to the radio programme. At age five, they said on irrefutable evidence, children in the UK are on average much shorter than those in all other wealthy countries. The speakers blamed this on the children's poor diets and the failure of the current government to make food companies stop producing and advertising dangerous, rubbish food. They also talked about how the population in general is heading for a 'tsunami of ill-health', most

immediately diabetes, which is predicted to take more NHS resources than all cancer treatments. Please listen to the relevant part of this programme on 'Sounds': <https://www.bbc.co.uk/sounds/play/m001n1p7>.

Conclusions

- Mostly eat food freshly prepared from raw ingredients.
- Rather than buying jars, start your children on real home-cooked food as an early part of weaning. They won't become fussy eaters and might avoid food allergies.
- Eat modest amounts of well cared-for meat if your ethics allow.
- Avoid sugary snacks, unless you are on a run, swim or cycle ride.
- Avoid foods that contain trans fats.
- If buying ready meals, read the labels and take the food out of the plastic packaging before heating it.
- Ignore all advice about food on soshul meeja. Better still, ignore them all anyway.
- Read Ravenous.
- Don't worry. Be happy. (Bob Marley) Eat delicious rubbish sometimes.
- Keep an eye on your gut, not literally!

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