



# MIND what YOU EAT

Battling weight gain, low mood or tiredness? Highly processed foods could be to blame for making us feel this way, as nutritionist Anita Bean discovers

**W**e all know about avoiding foods that give a short-term mental boost but no nutritional gain, but now modern imaging techniques are showing that eating a great deal of 'ultra-processed food' actually alters the neural connections in our brains. In the BBC documentary *What Are We Feeding Our Kids?*, Dr Chris van Tulleken investigated what effect eating a diet made up of 80% of ultra-processed foods for four weeks would have on his brain and body. The findings were shocking, and he reported weight gain, health problems and food cravings.

Even more worryingly, one in five people in the UK already eats this way. Ultra-processed foods currently account for more than half (57%) of all our calories, according to a study reported in the *British Medical Journal*. In children that figure rises to 64% of their diets and in adolescents it is 67%. Doctors suspect it is these foods that are causing a spike in obesity among youngsters.

The foods we are talking about include products such as crisps, biscuits, fizzy drinks, cakes, ready meals and mass-produced bread. They also include products that are marketed as healthy, such as cereal bars, vegan meat substitutes and plant milks. 'In essence, they are foods formulated through industrial processes that are combined with additional ingredients like sweeteners, colouring, stabilisers and preservatives and go through multiple processes,' explains registered dietitian Ro Huntriss. 'When looking at an ingredients list, if the majority are things that you would not use when cooking at home, the product is likely to be classed as ultra-processed.'

## The ultra-processed problem

Many experts think we're eating far too many ultra-processed foods and, when eaten in large amounts, these are linked to a number of health conditions and problems. As well as obesity, French researchers found that a 10% increase in the amount of ultra-processed foods in the diet was linked to a 12% increase in cancers. Meanwhile, a study of nearly 20,000 people between 1999 and 2014 found that eating more than four servings of these foods daily was linked to a 62% increased risk of early death. Experts are so worried about the obesity epidemic they believe is being caused by ultra-processed foods that Brazil has banned the advertising of them, while France and Canada officially recommend limiting their consumption.

## Testing the theory

At the end of the BBC experiment, Dr Chris gained almost 7kg and moved from a healthy weight to overweight. He reported poor sleep, heartburn, low mood, anxiety,

sluggishness and low libido. He also had piles from constipation. Researchers at University College London looked at his brain using state-of-the-art brain scanning (MRI) at the beginning of the experiment and then at the end. They found that areas of Chris's brain responsible for feelings of reward linked up with areas that drive repetitive behaviour – a similar response to using substances such as cigarettes, drugs and alcohol. Previous studies have found that ultra-processed foods can trigger addictive-like eating behaviours. Indeed, Chris found himself craving food much more often.

## What makes these foods so hard to resist?

Ultra-processed foods are made to be tasty and make us want to eat more. This is down to what the food industry calls hyper-palatability, or 'deliciousness'. One tactic that food manufacturers use is called the 'bliss point', and involves combining fat, sugar and salt in just the right ratios, so the food becomes almost

## WHAT COUNTS AS ULTRA-PROCESSED?

Ultra-processed food is a definition created by scientists in Brazil, a country which has national guidelines urging they be eaten as little as possible. Their classification system used four groups:



# 1

Unprocessed and minimally processed foods include fruit, vegetables, nuts, seeds, beans, pulses, grains, eggs, fish, plain yogurt and milk, with no added ingredients. They may be dried, frozen or pasteurised.



# 2

Processed culinary ingredients, including oils, fat, sugar and salt.



# 3

Processed foods that are a combination of the first two groups and include, for example, smoked and cured meats, cheeses, fresh bread, bacon, tinned fruit in syrup, beer and wine.



# 4

Ultra-processed foods are formulations made mostly or entirely from substances derived from foods or additives. They include mass-produced breads, ready meals, breakfast cereals, sausages, confectionery, biscuits, pastries, cakes, soft drinks, ice cream, 'fruit' drinks, fruit yogurt, crisps, sauces, dressings, baked beans, tinned soups, meat alternatives, soya and other non-dairy milks, pre-prepared pies, pasta and pizza, cereal bars and margarines.

impossible to stop consuming. Think chocolate, ice cream, crisps and biscuits – their perfect balance of sweet and salty, fatty and salty, fatty and sweet or all three get the brain's reward centres buzzing. You get a dopamine hit that triggers endorphins and other chemicals which give you a moment of bliss. And when that moment comes to an end, your brain wants more. A brain-imaging study showed the more people experienced reward from eating ice cream, the more they needed to consume to get the same enjoyment. Hardly surprising then that people who eat large quantities of ultra-processed foods are more likely to gain weight.

## Why do they cause weight gain?

Scientists don't know for sure what it is about ultra-processed foods that causes weight gain. But it's most likely a combination of their nutrient make-up and the physical act of processing. Ultra-processed foods have a high 'calorie-density', meaning they contain lots of calories per gram

and are high in sugar, salt or saturated fat. They are typically low in fibre and protein, all of which makes them less filling, easier to overeat and less likely to satisfy the appetite than unprocessed or whole foods.

But the impact of ultra-processed products goes beyond their nutritional composition. 'When food is processed, the body will absorb more of the calories it contains,' explains Giles Yeo, a geneticist at the University of Cambridge and author of *Why Calories Don't Count*. 'Processing increases a food's "caloric availability", the amount of calories the body can actually absorb as opposed to the number of calories locked up in the food. It makes a food more digestible.'

For example, if you consume 100 calories of sweetcorn, only a fraction of it is absorbed because much of the caloric content is bound up in fibre, which we cannot digest. But when it is processed to make cornflakes or corn tortillas, a much larger fraction of calories becomes available to the body. In other words, your body takes more calories from a processed food than it would do from the same food

in its unprocessed state.

In a ground-breaking study, researchers at the US National Institutes of Health compared two diets containing the same calories, fat, sugar, fibre and salt, but one was made up mostly of unprocessed foods and the other mostly of ultra-processed foods. The participants spent two weeks on each diet and were told to eat as much as they liked. On the ultra-processed diet, the volunteers ate an extra 500 calories per day and put on a kilo of weight over two weeks. When they ate unprocessed foods, they lost weight.

One possible explanation is that ultra-processed foods were consumed more quickly because they're softer and easier to chew and swallow, which potentially resulted in delayed signals of fullness. Previous studies prove that eating slowly decreases hunger. Blood tests showed that the hormones responsible for hunger increased on the ultra-processed diet, which may explain why they ate more. The effect of additives such as artificial sweeteners on the gut microbiome is another theory.

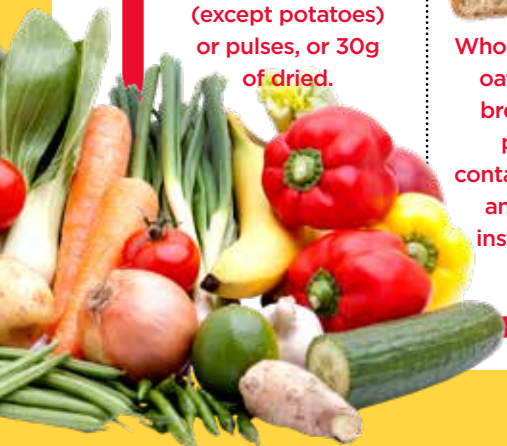
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## HOW TO EAT BETTER

It's difficult to change family eating behaviours but, as a rule, try to eat:



At least five portions of fruit and vegetables a day. One portion counts as 80g of any fresh, frozen or canned fruit, vegetable (except potatoes) or pulses, or 30g of dried.

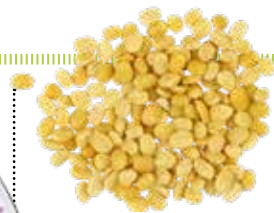


Wholegrains, such as oats, wholegrain bread (not mass produced or containing additives) and brown rice, instead of 'white' versions.

Nuts and seeds – Heart UK recommends eating 30g a day to lower cholesterol levels. Try to avoid salted, honey-roasted or flavoured nuts, which come with extra salt and sometimes sugar, too.



Lean protein, such as fish, chicken, tofu, beans and lentils – but limit red and processed meat to no more than three portions per week (totalling 350–500g cooked weight).



Include more plant protein – aim for at least one meat-free day per week. Plant sources of protein include beans, lentils, chickpeas, hummus, tofu and Quorn.





Read the label: ultra-processed foods often have lots of ingredients

## WHAT SHOULD WE LOOK FOR ON LABELS?

'A long list of ingredients is likely to indicate a food is ultra-processed,' says Ro Huntriss. 'Look out for ingredients that you do not recognise the name of, or would not be used in a home kitchen, for example, hydrolysed proteins, soya protein isolate, casein, whey protein, high-fructose corn syrup, maltodextrin or dextrose.'

Additives are often (but not always) added to ultra-processed foods and usually appear at the end of the ingredients. These include flavours, flavour enhancers, colours, emulsifiers, emulsifying salts, sweeteners, thickeners, and anti-foaming, bulking, carbonating, foaming, gelling and glazing agents.

Foods high in sugar and salt are likely to be ultra-processed – look for the red traffic light on food labels. Some pre-prepared foods are not ultra-processed, but any that include additives and chemicals not used in home cooking probably are.

Each serving (150g) contains				
Energy 1046kJ 250kcal	Fat 3.0g LOW	Saturates 1.3g LOW	Sugars 34g HIGH	Salt 0.9g MED
13%	4%	7%	38%	15%
of an adult's reference intake				

Avoid foods with lots of red traffic lights on the label



More unsaturated fats (from nuts, seeds, avocados, olive and rapeseed oil and oily fish) than saturated fats (from butter, fatty and processed meats and pies).

Milk, plain yogurt or cheese – as long as they don't have added sugar or additives.



## SHOULD WE AVOID ALL PROCESSED FOODS?

'Eating ultra-processed foods on occasion is not likely to cause any risk to health,' explains Ro. 'Although these foods should not be consumed frequently, they can still be included, albeit less frequently as part of a healthy diet.'

That said, registered nutritionist Jenny Rosborough would like to see less intensive marketing in supermarkets of ultra-processed foods with more promotion of whole foods: 'We need policies designed to level the playing field to ensure that healthier foods are put in the spotlight. Ultimately, to consume a diet higher in whole foods, we need a cultural shift; we need to challenge what has become the status quo while taking into account the role that ultra-processed foods play in providing ease and convenience for time-poor families.'

Some ultra-processed foods are healthier than others – wholegrain breakfast cereals with no added sugar, wholemeal sliced bread, tinned baked beans and unsweetened soy or plant-based drinks are all ultra-processed but have nutritional benefits. Similarly, ready-made pasta sauces, ready meals, spreads and smoothies can be healthy. 'Tinned baked beans count as one of your five a day', says Ro. 'They are high in plant-based protein and fibre, and low in fat. They also contain iron, zinc and B vitamins.' □

