

**BOTH HAVE BEEN DEMONISED,  
BOTH HAVE BEEN CELEBRATED.  
SO WHICH MACRO IS THE  
REAL VILLAIN CRUSHING  
ALL OUR HEALTH AND BODY  
COMPOSITION GOALS?**

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# ***FAT*** **vs.** ***SUGAR***





## HISTORICALLY EVIL

In the '80s, low-fat diets reigned supreme. A dieter's ideal breakfast consisted of half a grapefruit – thought to contain fat-dissolving enzymes – and a cup of black coffee. Full-fat milk was eschewed, supermarket shelves were stacked sky-high with low-fat yoghurts, spreads and desserts, and fat was commonly perceived as public enemy number one.

The hysteria surrounding fat began building in the 1950s, when cholesterol was declared the nemesis of good health, and reached fever pitch in 1977 when American health authorities encouraged low-fat diets. However, by the '90s, research had debunked many of the ideas informing such guidelines and the healthy fats found in vegetables such as olives and in fish such as salmon

were found to actually *protect* against heart disease. Fat began to make a comeback, while sugar was exposed as the real villain behind unwanted weight gain – particularly when consumed in processed foods containing refined sugars such as sucrose. Sugar has been indicted as the leading culprit in virtually all modern Western maladies.

But is sugar really the threat to our health it's made out to be? And with so much ongoing debate about 'good' fat vs 'bad' fat, not to mention 'good' cholesterol vs 'bad' cholesterol, should we really feel confident about welcoming fat back into our diet? After all – it's not so long ago that we were convinced fat made us fat and sugar was simply our sweet friend.

## CUTTING THE FAT

Fat is a macronutrient – a type of nutrient that provides calories or energy. There are three macronutrients in protein, fats and carbohydrates, and while we need all three to sustain life, the energy provided by each one varies: fat has nine calories per gram whereas carbs and protein only have four. Due to its high-calorie content, we tend to associate a high intake of dietary fat with the risk of becoming overweight or obese.

The primary function of fat is as an energy reserve. During exercise, the body initially uses the more readily available calories from carbohydrates for energy, but after about 20 minutes, it often switches to stored fat to keep going. Fat also provides essential padding and insulation for the organs, and helps the body absorb necessary fat-soluble vitamins including vitamins A, D, E and K.

There are several types of fat – some 'good', some 'bad' and some a bit more

morally ambiguous. Unsaturated fats — including monounsaturated and polyunsaturated fat — are generally considered healthy as they contain essential fatty acids that the body can't produce naturally and, according to the National Institutes of Health, contribute to brain development, improve blood cholesterol levels, ease inflammation and stabilise heart rhythms. They are predominantly found in plant foods, such as vegetable oils, nuts and seeds.

Saturated fats are mostly found in animal foods, with the exception of a few plant foods such as coconut and palm oil. Saturated versions of the macro were largely to blame for the demonising of fat in the 1950s, amidst panic about the rising tide of heart disease. An American researcher called Ancel Keys developed a theory that saturated fat caused heart disease because eating it seemed to raise

total cholesterol levels. However, Keys' theory had a lot of flaws, and in 2006 the findings of an eight-year trial that included almost 49,000 women from the Women's Health Initiative (WHI) indicated that a low-fat diet had no great benefit for either weight loss or reducing the risk of cardiovascular disease.

So does that mean butter, meat and cheese belong in a healthy diet? Maybe. A mounting slew of evidence suggests that far from contributing to heart problems, having full fat dairy in your diet may actually protect you from heart disease and type 2 diabetes. The true 'bad' fat is trans fat: produced by heating liquid vegetable oils in the presence of hydrogen gas and a catalyst (a process called hydrogenation), trans fats provide no health benefits whatsoever. And here's the real kicker – they're often found in low-fat or fat-free foods.



## THE SCOOP ON SUGAR

Sugar is a form of carbohydrate that the body converts to readily accessible glucose, used for both exercise and daily activity. If you tucked into a bowl of spaghetti bolognese, the spaghetti would be converted into sugar and stored as glycogen in your muscles, ready to be burned off later through exercise or your basal metabolic rate.

What the anti-sugar movement often fails to recognise is that glucose is the fundamental fuel for our physical and mental function. Sugars are found naturally in fruits, vegetables, milk and milk products, which also contain other nutrients such as vitamins and minerals. Wholefoods, in particular, boast an abundance of nutrients and fibre which actually slow down the absorption of the natural sugars they contain. So it's not as straightforward as simply swearing off the sweet stuff – a better understanding is required of how different types of sugars affect your body and your overall health.

Like fat, sugar can take many different forms – the main types being glucose, fructose and sucrose. As discussed, the body runs on glucose – that's why it's also known as blood sugar. The supply of glucose in your system needs to be constant and dependable, which is why the pancreas secretes a hormone called insulin to regulate it. Insulin allows glucose to enter body cells and also helps with the storage of excess glucose in the liver. People with diabetes have either insufficient or inefficient insulin, meaning their blood sugar levels tend to be too high and need to be kept within a target range. This is also why low GI carbohydrates are preferable to high GI carbohydrates – they are more slowly digested, absorbed and metabolised.

Fructose is a sugar found naturally in fruit and also added to processed foods. It's actually what most people are referring to when they say, "I quit sugar". The human body doesn't naturally produce fructose, and throughout evolutionary history, we never really consumed it (except in the form of fruit) until recently. Glucose and fructose are metabolised very differently by the body: the key difference being that while every cell in the body can use glucose, the liver is the only organ that can process fructose. This means if fructose is consumed in excess, it can put immense strain on the liver and even lead to non-alcoholic fatty liver disease.

But this doesn't mean fruit is off the menu – fructose derived naturally from whole fruit has a different metabolic effect on the body when compared to fructose added to processed foods, largely due to the presence of dietary fibre.

Confused yet? The bulk of people's fructose consumption comes via table sugar or high-fructose corn syrup. That's because sucrose (ordinary table sugar) is made of up of 50 per cent glucose and 50 per cent fructose. When we eat a diet that is both high in calories and high in fructose, our livers get overloaded and start turning the fructose into fat. This, in essence, is why sugar has landed in the sin bin in recent years.

Furthermore, fructose is highly addictive. A highly-publicised review of dozens of studies by cardiovascular research scientist James DiNicolantonio actually compared it to cocaine, due to the way sugary treats spark the pleasure centre in the brain, releasing feel-good chemicals dopamine and serotonin. In fact, we're biologically drawn to sugar, as its ability to help the body store fat was vital to surviving winter in Paleolithic times.

While glucose triggers the production of a hormone called leptin that sends a 'stop eating now' message to the brain, fructose actually confuses your hunger hormones ghrelin and leptin, making you feel hungrier.





## THE REAL SUPERVILLAIN

The latest research suggests that it's not the overconsumption of fat or sugar separately that leads to weight gain, but fat and sugar in combination that's the real threat. A recent British BBC programme placed two doctors (who happened to be identical twins) on extreme low-fat and low-sugar diets for a month, respectively. By the end of the programme, it was clear that neither diet increased metabolic risks and weight gain to a greater extent than the other – rather, the biggest threat most people face is processed foods which present a tantalisingly easy-to-over-eat 50:50 mix of both fat and sugar. The most obvious example being the plain, sugar-glazed, all-American doughnut.

Nutritionist Angela Emmerton (BHSc Nutritional Medicine), founder of the website Nutritional Matters and ambassador for *That Sugar Film*, says that eating 'bad' fats combined with excess sugar is a guaranteed recipe for chronic disease including type 2 diabetes and cardiovascular disease. But it's important to put the research into context, she adds, rather than simply demonising the latest dietary baddie. Neither fat nor sugar are inherently dangerous, and blaming one or the other for your health woes is not helpful. Like anything regarding diet, it's all about the amount of fat and sugar you consume.

"The striking difference between fat and sugar is that 'good' fats help us feel full for longer, so we're less likely to overeat," says Emmerton. "Sugar provides us with a quick burst of energy, which is often the reason why we 'shoot for sugar' when we're tired – think of that 3pm slump where you're on a mission to find the cookie jar or fund-raising chocolate box in the office! Sugar is a false friend that will dump you just as quickly as it befriended you, leaving you sated one moment yet uncontrollably craving another 'hit' the next.

"Both sugar and fat can cause weight gain, but it's the combination of the two – as well as the fact that human evolution hasn't caught up with the way we consume food today – that creates the real problem. Scapegoating fat or sugar isn't ultimately that useful. Because the human metabolism reflects a complex interplay of things such as genes, hormones and gut bacteria, the amount of energy we absorb from what we eat and the manner in which we process it varies greatly from person to person."

In other words, what works for you may not work for someone else. But rather than advocating moderation and maintaining a macro-balanced diet, Emmerton suggests there are specific food choices and meal patterns that you can adopt to maximise your metabolic efficiency – just be aware that results may vary.





## FINDING THE BALANCE

According to Sydney-based nutritionist and exercise physiologist Dr Bill Sukala, when many people become fixated on 'quitting sugar' or 'cutting out fat', they overlook nutrient density and try to thrive on a too-simple strategy. He believes that it makes more sense to assess foods on their merits as a whole; understanding that the quality and nutrient density of food sources matters more than their relative quantity in the diet.

In practice, one of the healthiest things you can do is adopt a less prejudiced approach to fat and sugar, says Dr Sukala. Neither 'fat-free' or 'sugar-free' necessarily equates to healthy or wholesome. He bemoans the fact that our love-hate relationship with food is now so deeply embedded in our culture that we find it psychologically challenging not to overeat when we are presented with foods which rate high in popularity but low in actual nutritional value. For example, foods such as glazed doughnuts and ice-cream which fit the 50:50 profile of fat/sugar are only meant to be enjoyed sparingly.

"I see a lot of people with food anxieties that are generated from the anti-sugar and anti-fat movement," says Dr Sukala. "Do people need to eat less sugar? Yes, absolutely. No one is denying that. But when people cut out high-quality carbohydrates altogether (for example, brown rice, quinoa, vegies and fruits) because they associate them with 'sugar', then this is a big problem; they lower their fibre intake and miss out on all the wholesome health-promoting phytochemicals that are present in these foods, all of which contribute to satiety (which helps keep us from overeating) and weight control."

"I don't think it's fair to label fat and sugar as a sinister combo per se. It's easy to overeat processed foods loaded with fat and sugar that are low in nutritional density. But a quality nutrient-dense diet feeds our healthy gut bacteria which in turn helps us maintain a healthy body weight, whereas a diet low in nutritional density is much more likely to result in weight gain."

Emmerton agrees, pointing out that 'good' fats are an essential part of a nutritious diet and that to exclude them would involve becoming nutrient deficient. The problem is that we attach moral terms such as 'good' and 'bad' to different types of fat in the first place, and unfortunately, it's a reflection of our tendency to view nutrients and specific foods in isolation, rather than combined in a balanced diet.

"Adding fat to a meal can slow down the absorption of carbohydrates, due to a slowing down of gastric emptying (the rate at which food passes from the stomach into the intestines), which reduces the speed in which blood glucose levels rise. Therefore eating good fats and carbohydrates together will help keep you and your blood sugar levels on an even keel," says Emmerton.

Dr Sukala adds that an underestimated problem when it comes to reaching our body composition goals is a combination of overtraining, under-recovery and under-eating, creating a 'perfect metabolic storm'. Under-eating occurs because many of us take the reduced fat and sugar idea to the extreme and start eating so 'clean' that we are not meeting the body's basal energy needs, he says. Eating to excess then occurs to compensate for the deprivation.

## THE VERDICT

So what's the solution to all this confusing dietary information – other than not to judge the foods (and drinks!) we consume by their fat or sugar content alone? According to both Emmerton and Dr Sukala, it's to avoid manufactured foods which present carbohydrate and fat in equal proportions, and ensure our diets are made up of what writer Michael Pollan refers to as 'real food'.

"While the 50:50 combo of fat and sugar in a glazed doughnut should be reserved for the occasional treat, there are other fat/sugar combos that provide good nutritional benefits, such as a teaspoon of almond butter with an apple, or a handful of almonds with a couple of squares of dark chocolate," says Emmerton.

"These combinations tick off the holy trifecta: they keep you satisfied, they're nutritionally dense *and* they taste good! Plus, you get to enjoy something sweet and keep your blood glucose levels low. They're a win-win!"

Similarly, "Eating fruit in its natural form is the best way to have your cake and eat it too, as the fibre in fruit will do a natural job of keeping your blood sugars balanced. Ditch that glass of juice with eight or nine teaspoons of sugar and get back to eating fruit as nature intended," says Emmerton. ■