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Visceral fat decoded: What is it and how does it affect the body?

According to surgeon John Conneely, our modern lives can be at odds with how our metabolisms work — but there are ways to balance this, writes *Niamh Jiménez*


John Conneely

While enriching foods with sugar and starch may have helped to reduce infant mortality in the early 20th century, the same cannot be said for today, according to John Conneely, a general and bariatric surgeon at the Mater Private Hospital, Dublin.

In Conneely's view, the uninterrupted supply of such foods, coupled with our largely sedentary lifestyle, is one of the primary reasons why we carry more body fat than our ancestors.

"Historically, we'd have had a period during the year where we could gain weight in preparation for longer periods when we would have had very little access to energy-rich foods," he tells me. "That's why, if you take in 10,000 calories, your body will absorb the better part of those 10,000 rather than ... saying, 'Well, I only need 1000 right now.' So, if we can store more energy at any stage, usually we will."

When modern supermarkets collide with our evolutionary preference for carbohydrate-laden foods and our innate capacity to overeat (thanks to a malfunctioning hypothalamus that interferes with the sensation of fullness), the result is a "steady rise in visceral fat as our weight increases."

But what is visceral fat and why should we be so concerned about it?

Dangers of visceral fat

"Broadly speaking, as an adult, you have fatty deposits underneath the skin [known as subcutaneous fat], and you have fatty deposits within the body's cavities, mainly within the abdomen, but also within the chest and thorax," Conneely explains. "Visceral fat is the fat that is within the body cavities, and it is associated with the different organs within each cavity."

Thanks to popular messaging, many of us think of visceral fat as the fat that "wraps around" our internal organs. But Conneely emphasises that, with the exception of the kidneys, this fat encases supporting structures like the blood vessels and nerves associated with those organs, rather than encasing the organs themselves. Its function, like any fat molecule, is to store energy.

"One difference between visceral fat and subcutaneous fat is that visceral fat tends to accumulate," he says.

The reasons for this, according to the bariatric surgeon, are rooted in our evolutionary biology, which was not adapted for an environment where Coco Pops, pizza and gummy bears are plentiful 365 days per year.

Our increasing levels of visceral fat are associated with an elevated risk of health conditions such as type 2 diabetes and cardiovascular disease.

Much of the risk stems from the fact that visceral fat is "metabolically active" — far more so than subcutaneous fat. This means visceral fat cells act like endocrine organs, secreting hormones and other molecules that can have deleterious effects on our overall health.

"Polycystic ovarian syndrome (PCOS) and fertility difficulties are common in women with obesity because the visceral fat within their abdominal cavity produces chemicals that are very similar to oestrogen," Conneely reveals. "This can lead to menstrual irregularities and abnormal uterine bleeding, as well as having a very negative impact on cancer risk."

One of the organs most heavily affected by excess visceral fat is the liver, which, according to Conneely, uses fat as a "biological battery".

The resulting inflammation, in his view, can be just as damaging as the effects of hepatitis or heavy alcohol consumption. In fact, fatty liver disease is becoming "the single biggest cause of liver transplants worldwide."

How much is too much?

With considerable health risks tied to visceral fat, how can we tell when we are carrying too much of it?

Precise measurement involves stepping into a $32,000 pressure-controlled chamber called a Bod Pod. Luckily, there are far more clinically practical, inexpensive ways of measuring whether you could stand to lose a few pounds.

The surgeon recommends body mass index (BMI) as "the best rough metric to go with," obtained by inputting your weight and height into an online BMI calculator. He says that "if your BMI is above 30, this is a clear indicator that your weight is having a negative impact on your health."

What about overestimating body fat in people with high muscle mass? "A BMI of 40 means you're in trouble health-wise," Conneely says. "Unless you're Arnold Schwarzenegger."

Alternatively, the waist-to-hip ratio (the waist circumference divided by the hip circumference) is a good indicator of cardiovascular health risk, especial-

ly in men. Abdominal obesity is defined by the WHO as a waist-hip ratio above 0.90 for males and above 0.85.

For the more tech-savvy, bioelectrical impedance analysis — available through smartwatches or body fat scales at your local pharmacy — offers a "reasonably reliable" alternative.

According to Conneely, visceral fat is in the normal range when it makes up about 10pc of a person's total body fat.

"So, if your electric scales tell you that your total body fat is about 33pc of your body weight, which is a bit high, then 3.5pc of your body weight is going to be visceral fat. The higher that number goes, the more dangerous that is."

Losing excess visceral fat

What steps should you take if you discover that your visceral fat levels are higher than they should be?

Conneely tailors his advice based on whether you are carrying excess weight or living with clinical obesity. He emphasises that the latter is "not a lifestyle choice but a World Health Organisation-recognised chronic, relapsing, lifelong disease."

From his perspective, messaging that encourages people with obesity to simply "get into the gym and shed a few pounds" perpetuates the myth that obesity results from a person "intentionally letting themselves go."

In fact, he argues, a person's behaviour has very little impact on the trajectory of the disease, which he describes as biologically reinforced by "abnormal biochemistry we have no cognitive control over."

For many people with clinical obesity, he believes no lifestyle intervention rivals the benefits of surgeries such as gastric bypass when it comes to weight loss and disease control.

For those carrying excess visceral fat who are not clinically obese (or who have reached a healthier weight following metabolic surgery), he recommends approximately 3.5 hours of weekly cardiovascular exercise, during which your heart rate should be elevated to 120-140 bpm.

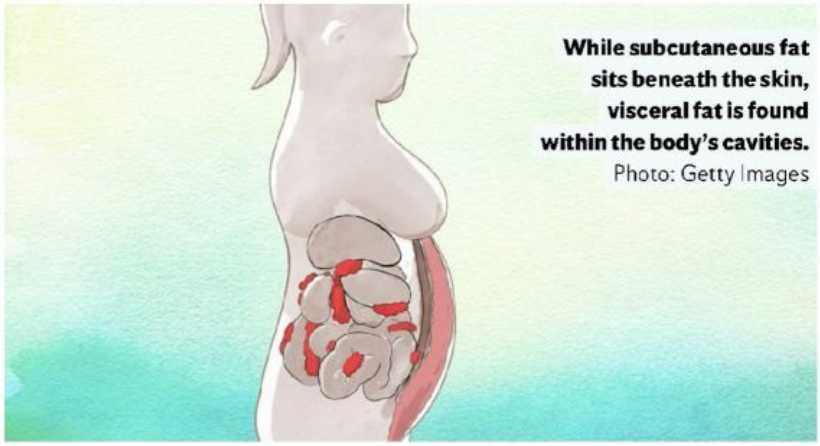
While 10,000 steps a day is a useful metric, he is clear "some degree of cardiovascular strain" is essential for individuals actively seeking weight loss.

As for diet, Conneely asserts, "It's rarely how much you eat. It's almost invariably what you eat and when you eat." According to the bariatric surgeon, the body reacts to energy-dense, highly processed foods much like it does to carbohydrates — by laying down fat rather than muscle.

Contrary to what you might think, he believes the same is true of fasting. A prolonged fast, accompanied by a rise in insulin levels and a decrease in blood sugar, signals to the body a scarcity of food, prompting it to convert your next meal into fat stores.

Instead, he advocates for a well-structured diet with protein as the cornerstone of each meal. This approach ensures "a slow-burning, constant energy source throughout the day, preventing the body from entering the stress zone where dietary nutrients are turned into fat."

It is clear that achieving the right balance of protein, fat and carbohydrates, along with appropriate vitamins and minerals, is crucial. But Conneely challenges the misconception that fat is the dietary villain, emphasising that the real threat comes from our consumption of large quantities of highly refined carbohydrates, not fat.



While subcutaneous fat sits beneath the skin, visceral fat is found within the body's cavities. Photo: Getty Images