

- Body weight

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periodical@publiclibrary@gmail.com

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WHAT DECIDES WHERE MY BODY FAT IS STORED?

Whether its bums and tums, or your arms, hips and thighs, flab can gather in all sorts of places. Here's what controls body fat distribution and how much you can change it

by JESSICA BRADLEY

One of the biggest factors that determines where fat is stored in your body is your sex. Men tend to store fat around their abdomen, whereas women are more likely to store it on their thighs, bums and hips.

"From the point of view of childbirth and childrearing, having energy reserves in these areas is very useful because of the energy cost of pregnancy and the lactation that follows," says Dr Adam Collins, associate professor of nutrition at the University of Surrey.

"Hormonal differences influence our ability to store fat," he says. According to some research, it could be the female sex hormone oestrogen, in particular, that plays a huge role in shaping body fat distribution. This means that premenopausal women – who have

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higher levels of oestrogen than others – are less likely to store fat in their abdomen and close to their vital organs. Consequently, they're protected against the ill effects of being overweight, such

as high blood pressure, heart disease and diabetes, whereas men are more likely to develop these conditions earlier in life. However, after women reach menopause, their oestrogen levels decline. Such hormonal changes mean that they'll develop more of a typical male pattern of fat deposition.

But what about your face, arms and legs? According to Collins, the biggest determinant in gaining fat in these areas is, unsurprisingly, your overall fat levels – if you're carrying excess fat, it'll likely be spread throughout your body.

Yet genetic variations can result in some differences here, particularly among women. According to a major study of half a million UK people, "the genetic effects that influence fat distribution are stronger in females compared to males." Also, fat



Various mechanisms may be at work when it comes to abdominal fat – research suggests possible associations with stress and sleep quality

distribution may be more slightly heritable in females than males, meaning women could have more reason to point the finger at their parents.

Stress might be another factor. There's some truth to the theory that it can cause women to gain more weight around their middles – some studies do show a link between heightened cortisol levels and weight around the abdomen. This is only a correlation, however; exactly how a person's weight responds to stress isn't completely understood.

"It might be more complicated than just cortisol," says Fredrik Karpe, professor of metabolic medicine at the University of Oxford. "It's easy to blame cortisol for these things and, clinically, people with far too much cortisol get this body shape. But there are probably other mechanisms [at work, too]."

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Recent studies have also hinted that poor-quality sleep could have a role in body fat composition – these suggest the worse you rest, the more likely it is that you'll have abdominal fat. But, according to Karpe, current published research is far from conclusive.

What *is* conclusive, however, is a major link between where you store fat and the levels of each fat type you're carrying.

What types of fat are in my body?

There are two main kinds of body fat. Firstly, there's subcutaneous fat. This is the fat that you'll find just underneath your skin that (for the most part) healthily stores energy – pinch your arm right now and you'll be able to feel it.

Secondly, there's visceral fat, otherwise known as 'deep' fat, which tends to be more unhealthy. This form of fat can

accumulate deeper in the abdomen and surrounds your organs, particularly your stomach, liver and intestines. It's hard to measure the amount of visceral fat a person has, since we can't see it or get to it. But if you have excess body fat, it's more likely your body will store it as visceral fat.

"If it becomes full up or overwhelmed, the body's ability to store fat as subcutaneous fat spills over and it ends up being stored as visceral fat," Collins says. "It's not the fact you're storing fat above the waistline [that's unhealthy], but that you've got more visceral fat surrounding your organs."

"The body stores fat as visceral fat as a short-term measure when there's a surplus. It's an emergency space. The fat starts to spill over to places where it shouldn't be and this is where you →

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→ start to get issues such as insulin resistance – a risk factor for diabetes.”

As you can probably guess, lasting visceral fat isn't good for your body and is linked to a higher chance of developing metabolic issues. For example, it can interfere with your body's ability to clear sugars from the blood and can lead to mismanaged circulation of fat in the blood, which in turn may contribute to the risk of developing heart disease.

Interestingly, there could be a genetic component to how much visceral fat your body has. Studies have found that, alongside sex, ethnicity can be a factor. “The clearest example of this is people from South Asia versus Caucasians,” Collins says. “People from South Asia have less subcutaneous fat and tend to have a higher likelihood of visceral fat.”

Do I have any control over my body's fat?

It's true that your body fat distribution is largely set by your sex, ethnicity and genetics. But you can exercise some degree of control over it by reducing your overall fat levels. After all, the biggest determinant of how much fat your body is storing deep in your abdomen is your overall body weight.

That's not to say you have complete control of your overall weight level – far from it. As Karpe argues, inherited factors in the brain that determine satiety play a huge role. If it takes you a while to feel full during a meal, causing you to eat more overall, your parents (or at least your parents' DNA) are partly to blame. But lifestyle factors can have a big influence on your deep fat levels; exercise and diet matter hugely – especially to those more prone to carrying abdominal fat.

“Exercise creates a metabolic effect – you can get significant health benefits from a relatively modest weight loss. This is because you're reversing the sequence of events, such as losing the fat around your liver,” says Collins.

Men who adopt healthier lifestyles and lose weight, for example, will preferentially lose this weight from their

“The biggest determinant of how much fat your body is storing deep in your abdomen is your overall body weight”

stomachs, Karpe adds – although, people of South Asian descent are an exception to this and are therefore at greater risk of developing diabetes at a young age.

Ultimately, we can't change our genetic predispositions – if you're more prone to carrying fat on your thighs, you can't shift this elsewhere. But, adopting a healthy lifestyle can help keep deep, visceral fat away from your belly and your vital organs. **SF**



by **JESSICA BRADLEY** (@jessica_E_Brown)
Jessica Bradley is a features journalist who writes about health and social issues.



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Lifestyle factors, such as exercise and diet, can have an effect on your levels of body fat