

Why Does Gas Cause Bloating?

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One question I regularly answer in my clinic involves the disruptive and painful effects of gas in the bowel. We need to look at a bit of physics here as well as the anatomy & physiology.

Your bowel is the last part of the muscular tube that makes up the gut. The gut is around 9 metres long and the last (approx.) 1 ½ metres is the bowel. Also called large intestine, large bowel and colon.

The bowel is porous and absorbs water and water soluble nutrients. As this water is absorbed, the insoluble residue, which includes lots of bacteria, forms into solids. These solids should be soft enough to pass out of our bottom easily and without straining.

When this process is disrupted for any reason, the first thing that happens is water is overly absorbed from the insoluble waste, and the insoluble waste matter dries out.

Your brain/bowel doesn't recognise that this waste is already drier than it should be, your bowel just keeps on drawing water off. The result is that the waste matter gets drier and drier and then harder and harder, and because of the tubular shape of your bowel, it forms typically into round balls, which are then hard to squeeze out when you go to the toilet.

This causes a build-up of solid matter which can then have a knock on effect to the rest of your bowel and gut and means you end up with too much waste matter in your bowel.

This fibrous matter is now populated by lots of bacteria, and when you put large amounts of fibre in a warm dark environment, add in some sugars and bacteria, you pretty much turn into a very efficient compost machine. This creates lots of gas which can only be excreted through your bottom.

Depending on what you have eaten will depend on what it might smell like, and anxiety, which stimulates other things like adrenaline, also add into the mixture to make things worse.

So, now to the physics, which is rather simplistic but hopefully gives an overview of what you can feel and identify from your bowel discomfort.

Solids.

Solids take up a finite amount of space. That means they don't expand.

Insoluble waste matter contains lots of water as it passes into your bowel. As it travels along the excess of this water is absorbed back into the body.

Drawing too much water from waste that is congested from the insoluble waste in your bowel forms it into hard solid pellets.

But, solids don't expand in size so moving through your bowel, although it may make you feel full and uncomfortable, they doesn't really cause too much pain until you try and pass them out of your bottom.

Liquids.

Like solids, liquid also takes up a finite amount of space, but liquid molecules like to lie as flat as possible. For example, a litre of water only ever takes up the same amount of space whether it's in a glass or a saucepan. Liquid in your bowel doesn't really feel uncomfortable and we aren't really aware of it unless we suffer diarrhoea-type symptoms.

Gas.

This is the bit that causes most of the pain.

Gas molecules like to get as far away from each other as possible. You can see this with steam which contains gases combined with water. Boil the kettle or a saucepan and steam gets everywhere. It's a visible image of how gases like to expand.

When gas forms in your bowel, (which is perfectly normal and natural,) if everything is working well, we naturally pass it out of our bodies as we move around or use the toilet.

But, once we get a build-up of waste matter, we produce more gas, which, if you are congested and constipated, can build up pressure and this becomes self-perpetuating.

The more gas we produce, the more the molecules want to expand away from each other and this starts to create pressure against the bowel wall. This pressure exerted against your bowel wall is picked up by nerves and pain receptors and you then feel the pain and discomfort we all identify with.

Imagine a balloon. Blow it up a little and the balloon feels soft, the more gas that you put in it, the tighter and more pressured it becomes. Too much gas and it puts the balloon under high pressure as the gas molecules try to get away from each other.

Your bowel is similar. The gas molecules put your bowel under pressure as the molecules try to expand and create pain, bloating and an abdomen that can feel as hard as a drum.

As gas travels along your bowel, the bowel wall experiences variations of pressure which cause you to feel more pain and discomfort.

What can help this congestion and gas.

By releasing the build-up of waste matter and associated gas, the abdomen can return to its normal size which should feel soft and malleable to the touch. It shouldn't feel hard, sore or painful when touched.

Colonics can really help release this waste, aided by taking a high quality supplement of friendly bacteria which help break your food down properly in your bowel and keep the less beneficial bacteria under control.

Altering your diet can also help by reducing highly fermentative foods for a time.

These foods are referred to as low FODMAPS foods.

Increasing fluids can also help as we need plenty of water to keep the insoluble fibre and waste matter soft and wet.

Other supplements may also help, but it's always good to check with a nutritionist or health care practitioner for specific advice.

If you have any concerns about your bowel or gut health see your GP.