

AIR POLLUTION ANTIDOTES

Reducing your chemical load and fortifying your body against air pollution is a piece of cake. Simply be mindful of what you eat and stock up on supplements, says **Dr Graeme Bradshaw**, founding director of the Integrated Medicine Institute in DB

It was only three months ago when we had the major spike in air pollution, promoting schools across Lantau to suspend all outdoor activities and cancel all sporting team practice. Air pollution is a real concern for us islanders – the good news is that there are simple things you can do to minimise its harmful effects.

According to research studies, certain foods and supplements can block the oxidation, inflammation and toxicity that air pollution inflicts on our bodies.

Essential antioxidants

The free radicals found in air pollution are only too ready to transfer to our bodies and start attacking our cells. The most well known is ozone. Ozone is able to oxidise tissues very quickly, causing damage to the cells, and irritating the eyes and nose. Oxidation can eventually lead to poor ageing and diseases.

The phytonutrients from coloured fruits and veggies are antioxidants that can neutralise these free radical attacks. If you eat five to nine servings of fruit and vegetables a day then you won't need to take any supplements of vitamin C or vitamin E, which are

known to produce an antioxidant effect. Unfortunately most people only have one to two servings, so if you are one of them, you should consider finding a food-based antioxidant supplement.

Studies have shown that those who are more prone to asthma, a runny nose, or coughing during high pollution days have fewer symptoms when they take vitamin E, and especially vitamin C. Just 400 mg of vitamin C supplement a day can reduce pollution-induced asthma.

I recommend whole-food supplements as they are derived from real food and offer superior bioavailability. For example, vitamin C is more active as an antioxidant when provided with flavonoid cofactors, abundant in whole-food supplements made from oranges, acerola and high phenolic food concentrates.

Combating inflammation

Irritating particles from air pollution don't just get into our lungs, they go to the heart, and worse still, they go to the brain. It has even been found that they get into the testes of men and can possibly cause sub-fertility. Your immune system reacts to these irritants, which causes inflammation.

Iron is often found in these nasty particles. It is another oxidant but it also causes inflammation, which particularly damages the blood vessels and the brain. Studies have shown that high levels of pollution age the brain faster. The rates of autism in populations living in more polluted areas are found to be twice as high.

Omega 3 from fish oil is an effective anti-inflammatory. A recent study in mice shows that when given an adequate level of omega 3, they had 30-50% protection from inflammation damage under the effect of air pollution. This makes fish oil an antidote to air pollution.

You would have to take two or three daily servings of very fatty fish, such as salmon or mackerel, to achieve the correct 'dose' of omega 3. Once again, not too many people can manage to do that, so I often recommend fish-oil supplements – a couple of capsules a day of purified fish oil can give you that 30-50% protection.

Fish oils are surprisingly fragile and are susceptible to rancidity. Poorly processed oils may also contain toxins, so choose a concentrated, pharmaceutical-grade fish-oil supplement to ensure quality and purity.

Your daily detox

Air pollutants are toxic and, fortunately, our bodies are innately equipped to detox. Glutathione is the primary detoxification enzyme in our blood. It acts like fly paper – many toxins in our body stick to it, including free radicals. Glutathione then takes them to the liver to be cleared away.

One way you can support your glutathione level is with vitamin C. Just 500 mg of vitamin C a day has been shown to increase the crucial glutathione level by 50%.

The DNA involved in producing enzymes that allow the body to create glutathione is known as GSTM1 and GSTT1. The problem is that about 40% of us have a genetic defect in GSTM1 function, which limits our glutathione production. Those people have been shown to be especially prone to asthma or a runny nose induced by air pollution.

Fig out on fatty fish – or take an Omega 3 supplement – to reduce inflammation

The good news is you can bypass that defect in the gene, and all of us can increase the amount of glutathione we produce. The secret turns out to be broccoli! Sulphoraphane, a key phytonutrient in broccoli, stimulates other genes to bypass that common DNA glitch, and produce glutathione and 10 other antioxidant and anti-inflammatory enzymes. However, if you cook broccoli for over four minutes, the sulphoraphane will begin to break down and you lose the health benefits.

Sulphoraphane is most concentrated in broccoli sprouts. Personally, I have started to take a broccoli sprout-extract supplement just to keep ahead of air pollution. If you are thinking about your long-term health and wish to detox daily, then consider broccoli and especially broccoli sprout as an extract.

Protecting your home

Lastly, don't forget your home. Research shows that more than half our total PM2.5 (fine particulate matter) intake occurs when we are indoors, at home. When levels are high, PM2.5 causes the air to appear hazy and it has been proven to have a detrimental effect on our health. These particles are so small (less than or equal to 2.5 micrometers in diameter) that they can get into the lungs, potentially causing serious health problems.

For this reason, I strongly recommend that you use a HEPA (high efficiency particulate air filter) at home, to get rid of these harmful particles. You can also upgrade these units with extra-strong carbon filters to protect your family from chemical pollutants, such as pesticide fumes and formaldehydes.

A carbon filter gets clogged up after about six months, so make sure you mark down the date you put it in, that way you won't have to stress about when to change it. 🔄

To make these tips practical, you can find the recommended supplements (and an Allen air-HEPA filter) at the Integrated Medicine Institute in Discovery Bay or Central. For more information, visit www.imi.com.hk.