

How to maintain your fitness and keep active as our air quality plummets

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Sydney may be blanketed in smoke for weeks or months as fires rage around the city. (Getty Images: Mark Kolbe)

Weighing up the benefits of exercise is usually pretty straight-forward: doing something — anything — is better than nothing.

But, for many of us, maintaining fitness and being physically active outdoors has recently become more complicated.

As fires blaze in parts of Australia, and dozens of communities fight to protect their lives and homes, many are living with smoke haze and thick smog.

NSW is now in the grips of its longest and most widespread period of poor air quality on record, and data shows [Sydney's air quality is three times worse this bushfire season](#) than at any time in the past five years.

Bushfire smoke poses a [range of health issues](#), and the best way to avoid it (generally speaking) is to stay inside.

But with fires [expected to continue for some months](#), how can we keep fit and active, while managing the risks to our health?

Who's most at risk?

Bushfire smoke irritates the respiratory system, and contains fine particles that can travel deep into the lungs, causing damage.

If you're healthy you can probably tolerate being exposed to air pollution for short periods (though it may cause itchy eyes and throat irritation), but smoke particles can aggravate respiratory conditions (such as asthma), and even trigger a heart attack or stroke.

Some of us are more vulnerable — namely children, older people, pregnant women, and those with pre-existing heart or lung problems.

These are the people who need to take extra care on days where there is a lot of smoke, and ensure they always have their medication or treatment plan handy.

Only one type of mask will protect you from bushfire smoke



Face masks are a familiar sight in countries like China and Japan. Should Australians consider them to protect their lungs from bushfire smoke?

Where's the safest place to exercise when it's smoky?

When air quality is low, it's important to minimise your exposure. That means where possible, keep your workouts indoors.

"It's safer to exercise indoors, there's no doubt about that," says Sotiris Vardoulakis, Professor of Global Health at the Australian National University.

"If people have access to indoor sports facilities, it would be better exercise indoors."

A gym session, visit to your local recreation centre, or yoga class are all good options. At home, body weight exercises like squats, push-ups and lunges can all be done indoors.

"Over prolonged periods of time, assuming people can't stay in their houses for too long and they need to go out and ... do some exercise outdoors, then we recommend [looking] at air quality data," Professor Vardoulakis says.

"The best information to look at is fine particles — PM2.5 — reported as hourly concentrations ... and plan your daily activities accordingly.

"There's a balance there to be achieved: we want people to exercise, but obviously we don't want them to be exposed to very high levels of air pollution," Professor Vardoulakis says.

How can you tell it's OK to head outside for exercise?

The best way to find out about air pollution levels in your area is to check your local [Air Quality Index](#) (AQI).

The AQI is calculated by measuring the amount of 'particulate matter' (microscopic pollutants) in the atmosphere. It ranks air quality from 'very good' to 'good', 'fair', 'poor', 'very poor' and 'hazardous'.

"When the index is hazardous, we should certainly avoid physical exercise outdoors," Professor Vardoulakis says.

We should also avoid being very active outside when air quality is 'very poor', he says.

If the air quality is 'poor' or 'very poor', those who are more vulnerable to pollution (including children) should avoid exercising outdoors. But for otherwise healthy adults, Professor Vardoulakis says it's a 'personal decision'.

"Some healthier adults will be less affected by air pollution while exercising," he says.

"We want to enable people to make these kind of choices for themselves, be aware of their personal circumstances, keep an eye on air quality levels."

Does time of day affect smoke pollution?

Air pollution fluctuates over the course of a day, and pollution from bushfire smoke is difficult to predict.

Unlike traffic-related pollution, which typically peaks in the morning and afternoon rush hours, bushfire smoke depends largely on the direction of the wind and other atmospheric conditions.

Recent data shows air pollution in Sydney tends to ease up late at night and early in the morning, says Professor Vardoulakis.

"From what I see, over the past few days, air pollution has been lower in the early morning, so it's better to plan a jog then, and also ... around midnight would be a better time to ventilate your house," he says.

But because pollution levels are always changing, he says the best thing to do is to check the AQI, which is updated hourly.

This is what you need to know about battling the 'airpocalypse'



The message is simple: stay indoors and limit your exposure. But while that might work for a day or two, what happens when it becomes the new norm?



While bushfire smoke is a combination of particles and gases, it's PM2.5 — particles smaller than 2.5 micrometres — that are likely to cause the most concern. (Getty Images: Sam Mooy / Stringer)

Is the length of time I am exposed an issue?

When it comes to exercise, it is not entirely clear how much exposure to air pollution — or how long you are exposed for — poses risks to your health.

Lidia Morawska, director of the International Laboratory for Air Quality and Health at Queensland University of Technology, says the lack of research on short- to medium-term exposure makes it difficult to give precise recommendations.

"We can't tell people not to exercise, because exercise is essential for our health," Professor Morawska says.

"But at what point, at what concentration level of pollutant, are the negative effects of inhalation ... more significant than the benefit of exercising? It is not known.

"It will depend more on the individual and the health of the individual."

Are some types of exercise more risky?

During exercise, we breathe faster and deeper, and therefore increase our exposure to the air around us.

Since moderate exercise will reduce our risk of breathing in more pollutants (compared to strenuous work-outs), gentle swimming or cycling might be a better idea than running, for example, on days when air quality is poor.

If you do exercise outdoors, it's not worth worrying too much about where you choose to work out.

Unlike in cities with lots of traffic-related pollution, where it's better to exercise away from the source of the pollution (busy roads), it's harder to get away from bushfire smoke.

"When you have bushfire smoke covering the whole city, it's difficult to find places which are less polluted," Professor Vardoulakis says.

Instead, he says the most important thing is to regularly check the AQI and monitor your own health.

"Try to find a window of time where air quality is slightly better. And of course, if you feel symptoms, it's better to stop exercising and take a break."

If you are experiencing any unusual symptoms, such as shortness of breath or chest pain, or just do not feel well, you should speak to your health care professional and in an emergency, call 000.

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