Wildfire Smoke and Outdoor Exercise

Exercising outdoors is a healthy summertime activity for most people, but it should be done with caution under smoky conditions.

People breathe more quickly and more deeply when they are exercising.

- The average adult breathes about 7 litres of air per minute (L/min) when resting. This increases steadily with more intense exercise (Figure 1).
- An adult doing strenuous exercise breathes at least 10 times more air than an adult who is resting. The same principle applies for children.

**FIGURE 1:** Breathing rates in litres per minute (L/min) for the average adult doing activities of different intensity.
Exercising outdoors can drastically increase your wildfire smoke exposure.

- The fine particulate matter (PM$_{2.5}$) in wildfire smoke can be inhaled deep into the lungs.
- Choosing a cleaner indoor environment can significantly reduce the amount of PM$_{2.5}$ inhaled (Figure 2).

![Graph showing PM$_{2.5}$ inhaled during different activities](image)

FIGURE 2: Estimates of fine particulate matter (PM$_{2.5}$) inhaled by the average adult during one hour of different activities under smoky conditions. Calculations assume that the concentration of PM$_{2.5}$ is 100 micrograms per cubic meter ($\mu$g/m$^3$) outdoors and 20 $\mu$g/m$^3$ indoors, due to indoor air filtration. These values are based on the average effectiveness of portable air cleaners tested during wildfire smoke episodes in British Columbia.¹


If you exercise outdoors during smoky conditions, following some simple guidelines can help to reduce the impacts of wildfire smoke.

- Choose lower-intensity activities than usual, such as walking instead of jogging, or jogging instead of running.
- Reduce the amount of time you spend exercising.
- Drink lots of water before, during, and after exercise to help your body cope with the smoke.
- Listen to your body. If you are experiencing symptoms, stop exercising or reduce the intensity.
- Allow everyone to gauge their own signs and symptoms, and to make their own decisions about how to participate.
- Look out for others, especially children and older adults.
- Use weather forecasts, smoke forecasts, and your senses to help you decide on the best times to go outdoors.
- Consider cancelling or modifying group sporting events, and be aware of participants who may be more susceptible to the smoke.