

PROTECTIVE STRATEGIES FOR EXERCISE & PHYSICAL ACTIVITY IN AIR POLLUTION



BEFORE / AFTER training & competition

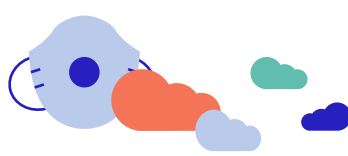
MONITORING OF POLLUTION LEVELS



Use websites and phone applications that report and **predict local pollution levels** for specific sites and hours using specific air pollution levels and quality indices such as the Canadian Air Quality Health Index (AQHI)*.

* <https://www.canada.ca/en/environment-climate-change/services/air-quality-health-index.html>

PRE-EXERCISE/COMPETITION & FACE MASKS



AVOID: Increased pollution exposures, during transport to venue.

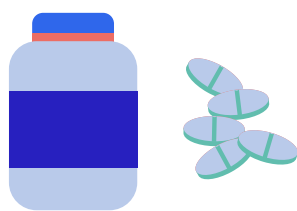
CONSIDER:
 (i) Wearing **face masks outside** of training and competition when local air pollution levels are high.
 (ii) close vehicle windows, turn on air conditioning, use cabin air filters.

MEDICATIONS

Current evidence does not suggest that asthma medications aggravate acute effects of air pollution during exercise. Patients with asthma or exercise-induced bronchoconstriction should **use medications as prescribed**.

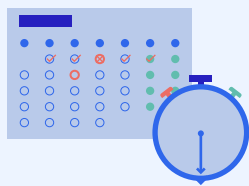


SUPPLEMENTS



Beta-carotene, 100g vitamin E, and 500g vitamin C, at least one week prior to competition might reduce reductions in respiratory function due to ozone exposure.

EXPOSURE REDUCTION BY TIME



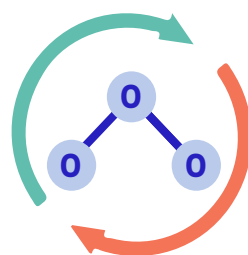
AVOID:
 (i) **seasonal exposures** (e.g. wild fires).
 (ii) **peak ozone levels** in the afternoon and evening.

CONSIDER: Exercise during mornings, participate in events when **local seasonal events** (e.g. wild fires) are less likely.

MULTI-DAY ACCLIMATION

Repeated exposures to ozone in the days before competition might preserve respiratory function, reduce respiratory symptoms, and mitigate performance declines.*

* More research on acclimation to air pollution is needed



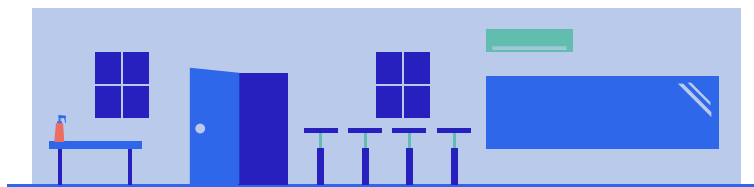
DURING training & competition

EXERCISE INTENSITY



Exercise intensity does not appear to potentiate adverse effects of pollution but evidence is scarce. In periods of high traffic-related air pollution exposure or ozone, a **reduction in the total inhaled dose** (concentration x ventilation x time) is more important than avoiding high intensity exercise.

INDOOR EXERCISE



PAY ATTENTION TO: Type of indoor air filtration, ventilation practises (e.g. windows open/closed, room size & occupancy).

ICE AND SNOW: Type of **air resurfacing** and **snow machines**, snow snowboard/ski wax.

FITNESS CENTRE: Type and frequency of **disinfectants, cleaning agents, fresheners** and **candles**.

EXPOSURE REDUCTION BY DISTANCE



AVOID Major traffic arteries, large construction sites, dense built environments (e.g. high-rises, road network).

CONSIDER Choose routes along smaller, open streets, through parks, green and blue spaces.