The dirty air we breathe

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Vancouver CoastalHealth
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We all know that dirty air poses problems for our health but it often feels like there is nothing we can do about it. The first step is to understand the problem: what is air pollution and what are its effects on health?

A recent workshop on Air Quality & Health was hosted by the BC Lung Association highlighted the problems we face and identified some strategies for helping ourselves. Presenter Dr Nino Kunzli, and expert on environmental health from Spain, suggested that susceptibility is the key to understanding health effects of dirty air.

One's susceptibility to air pollution is affected by factors like where we live, medical history, genetic pre-disposition and whether we are part of high-risk population like children, elderly and chronically ill. It is also affected by the type, degree and duration of exposure to pollutants.

A study in California children to age 18 found that the lungs of children growing up in smoggy areas were underdeveloped. But if they relocated to a clean air area, normal lung development resumed. The study also found that asthma more common in those who lived near major traffic arteries. Not surprisingly, this reminds us that we should minimize our exposure to air pollutants.

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What's in our dirty air? What is air pollution?

One of the key elements of dirty air is particulate matter (PM). Measured in microns (millionths of a metre), particulate matter refers to microscopic solid and liquid particles suspended in the air we breathe. Particles between 2.5 and 10 microns in size (PM2.5 to PM10) get trapped in our airways and cause some problems. Those below PM2.5 are of most concern, though, as they get much deeper into the lungs and have the most effect on health.

Another common pollutant are Nitrous Oxides (NOx), a group of highly reactive gases which can react in the atmosphere to create nitrogen dioxide, an highly corrosive gas that is both harmful to health itself, and contributes to the creation of ground level ozone and PM2.5

Sulphur dioxide is a colourless gas that smells like, yes, a struck match. It irritates the lungs and is the foundation of acid rain (sulphuric acid).

Ground level ozone is another concern. Sure, ozone protects against ultraviolet light, but that is in the upper atmosphere. At ground level, it is a harmful pollutant damaging to plants and human health. It is also a key ingredient in smog.

Some of the things we can do are quite simple. For example, participating in the provincial Woodstove Exchange Program to replace old stoves with new, cleaner burning models. A little more complex, but possible, would be to legislate low-sulphur fuel fro diesel vehicles.

Implementing air filtration systems into workplaces, schools and other public buildings could reduce our exposure and the health effects of dirty air. Better yet, locating schools, daycare centres, fitness facilities and other public buildings away from major traffic arteries would certainly help. Individually, we can make sure vehicles are well maintained, and maybe even used less often! We can help ourselves — we just have to decide to do so. Have you?

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