



Ask the Expert with Dr. Darrell Menard

Find Answers to your Sport Medicine Questions!

Could cold air freeze my lungs?

Q: *I started running seriously this summer and absolutely love it. I prefer running outside and I would like to continue training outdoors during the winter months provided this doesn't put my health at risk. My concern is that when I exert myself in the cold I often get a burning sensation in my lungs and I cough after the workout. Friends tell me running in cold weather could freeze my lungs – is that possible? Concerned*

A: Dear Concerned: Congratulations on discovering the joy of running. There are many myths about the dangers of cold weather running including the risk of freezing your lungs. Research has shown people can train in temperatures in excess of minus 50°C without damaging their lungs. Our bodies are designed to function very well in cold weather and regardless of the temperature we have mechanisms in place that ensure the air we breathe in is at body temperature and 100% humidified when it reaches our lungs.

While inhaling cold air won't damage your lungs, it can irritate your airways and cause what is referred to as bronchospasm. When this happens you can experience a burning sensation in your airways, shortness of breath, chest tightness and cough. As air gets colder it tends to get drier and so the body needs to work hard to not only heat but also to humidify the air you inhale. Inhaled air is humidified by water donated from the cells that line your airways. When these cells get dehydrated they become irritated and you may experience bronchospasm. Some people are much more susceptible to this happening than others.

Try the following strategies to reduce your risk of irritating your airways:

1. Your nose heats and humidifies inhaled air better than your mouth – try breathing in through your nose and out through your mouth;
2. Wear a scarf, balaclava or ski mask over your nose and mouth – this helps trap heat and humidity when you exhale;
3. Ensure you are well hydrated for your workouts;
4. Schedule your runs for the warmest time of the day; and
5. Progressively increase your training intensity as tolerated

The bottom line: There is no risk you will freeze your lungs running anywhere on Earth. You can however get frost bite if you don't dress properly. Your symptoms suggest you have bronchospasm which may be helped by employing the above strategies. If your symptoms persist you may need to be medically assessed.

Dr. Darrell Menard MD Dip Sport Med

Dr. Darrell Menard is the Surgeon General's specialist advisor in sport medicine. He has worked extensively with athletes from multiple sports and has covered Canadian teams competing at multiple games including the 2012 Olympics and the 2016 Paralympic games. These articles were originally published in the Canadian Forces Journal, the Maple Leaf.

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