

# “Healthy Running”

## Fall and Winter Respiratory Infections

Late fall running is here, and winter running will soon be upon us. Now is when many runners begin training programs for winter and early spring races including the Shamrock races and Boston. The training plans are set, the Distance Series tune-up is scheduled, the long runs are inked in the calendar. And throughout the land one hears the refrain, “Everything should be fine as long as I don’t get sick!” It’s cold and flu season again! In this month’s installment of *Healthy Running*, I’ll summarize the associated signs and symptoms of these infections and guidelines for general care when ill. I’ll also discuss the risk runners have of getting these infection, the guidelines for deciding when to “run through it” and when to rest, and steps to take to lower your risks of respiratory infection.

The most common respiratory infection we are likely to face is the “common cold” or viral upper respiratory tract infection (URTI). Even the healthiest of people will get anywhere from 1 to 4 uncomplicated upper respiratory tract infections each year. More than 200 different viral strains are known to cause colds, with rhinoviruses most common in the fall and spring, coronaviruses most common during the winter, enteroviruses in the summer and fall, influenza virus in the fall and winter, and adenoviruses throughout the year. Symptoms include runny nose, sneezing, nasal congestion, post nasal drip, sore throat, hoarseness, headache, and cough. Fever may be present but typically only for the first 2 to 3 days of the illness and does not persist. Cough, if present, is usually dry or with only small amounts of clear mucus, and is usually due to post-nasal drip. Cough, however, may be a lingering and frustrating symptom for up to 2 to 3 weeks after an otherwise uncomplicated URTI. Sinusitis or “sinus infections” share many of these symptoms. Symptoms that suggest sinusitis include consistently discolored nasal drainage, toothache (of the upper teeth), pain and tenderness of the sinuses (often one sided only), facial pain or headache that is worse when leaning forward, and failure to respond to several days of fluids and decongestant medication. A “double sickening” pattern of illness, when initial nasal symptoms resolve only to have the congestion and facial pain return in 7 to 10 days, can suggest sinusitis. Otitis media, or “middle ear infections”, with symptoms of ear pressure, ear pain, and reduced hearing, are much less common in healthy adults than in children. Adults at risk of otitis media are those with any process that causes congestion of the Eustachian tubes (the pressure equalization channels between the middle ear and the nasal airway) such as recent air travel or chronic allergic congestion.

Pharyngitis, or “sore throat”, can accompany URTI’s or may present as a specific infection. Viruses are the most common culprit and include adenovirus, Epstein-Barr virus (“mono”), and coxsackie viruses. The most common bacterial cause of pharyngitis is group A streptococcus (“strep throat”). Late winter and early spring are peak strep seasons. The signs and symptoms of strep pharyngitis overlap extensively with other causes of respiratory infection. Strep pharyngitis is suggested when there are tender or swollen glands in the front of the neck, tonsils that are swollen or coated with pus, temperature over 100.4 F (38 C), the absence of cough, and age under 15 years.

Cough is a common symptom of uncomplicated viral URTI but can also occur in acute bronchitis and pneumonia. Once again, there is significant overlap between the symptoms of URTI and acute bronchitis. Physicians will often diagnosis acute bronchitis when there is a persisting or deep cough or a cough producing thickened and discolored phlegm (as opposed to modest amounts of mostly clear mucus in an URTI). Most cases of acute bronchitis are caused by the same viruses that cause URTI, and less than 10% of bronchitis is caused by bacteria. While URTI can be thought of as infections involving the nose, throat, and larynx, and bronchitis as infection of the trachea and larger bronchial passages, pneumonia, in contrast, implies infection in the lung tissue itself. This produces symptoms of fever, cough, sputum (discolored phlegm), shortness of breath, labored breathing with activity (such as running), and loss of energy. Viruses are thought to account for up to 30-50% of cases of community-acquired pneumonia (i.e., not in a hospital or nursing home), and bacteria are the cause in approximately 40-50% of cases. Pneumonia caused by the bacterium pneumococcus specifically represents about 15% of cases of community-acquired pneumonia in healthy adults.

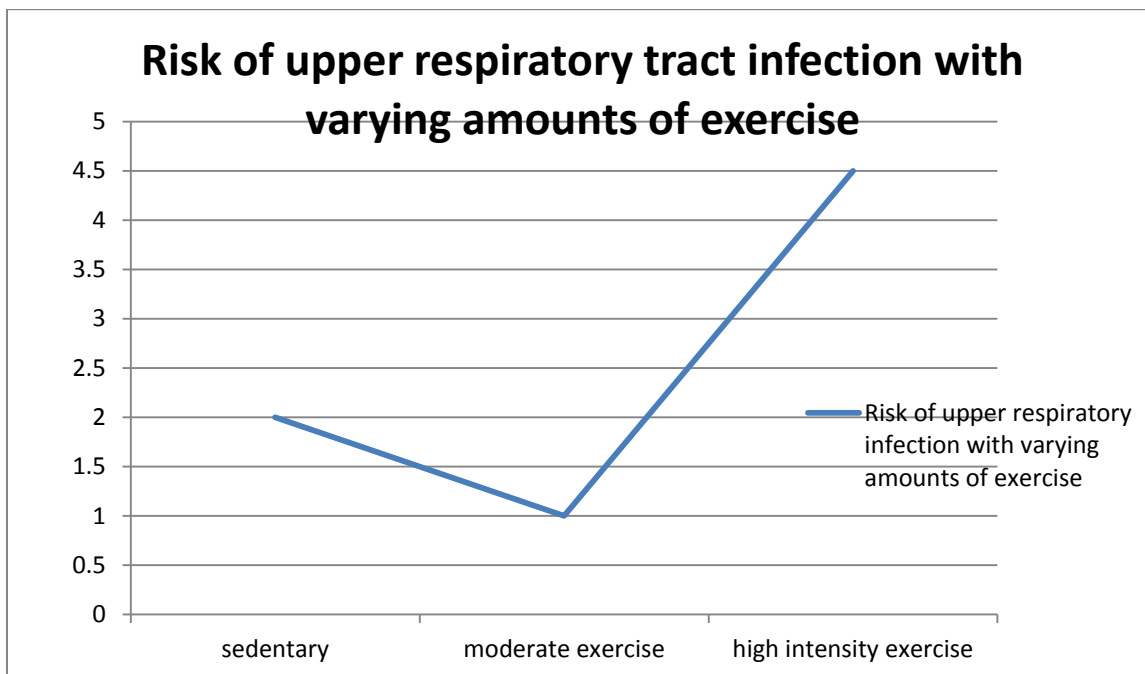
Finally, there is influenza. Influenza is a group of respiratory infections caused by strains of the influenza A and influenza B viruses. The specific strains of these viruses vary between flu seasons (which is why there is a different flu vaccine each year). Symptoms of influenza include fever (though not everyone with influenza has fever), cough (typically dry), harsh and irritated throat (as opposed to an outright sore throat), headaches, muscle aches, and fatigue. It can be a challenge to distinguish the common cold from “the flu”. Colds typically have more nasal and throat symptoms and less cough, while influenza typically has more “systemic symptoms” of fever, muscle aches, and fatigue. It is often said that while a cold seems to come on gradually, influenza starts abruptly - one second you’re fine, the next second you feel terrible. Those interested in learning more about influenza can log on at <http://www.cdc.gov/flu/>.

An understanding of the illness patterns above will help with discussion that follows about self-care and when to seek further evaluation. As noted, the vast majority of these infections are due to viruses. While we have anti-viral medications for very specific infections such as influenza, we do not have medication with anti-viral activity for the other infections described. Importantly, antibiotics are ineffective in treating viral infections and have not been shown to prevent bacterial complications of viral infections. With that in mind, it is prudent to recommend general self-care measures. Rest and adequate fluid intake are the mainstays of this care. Acetaminophen, to a maximum dose of 3,000 mg per day, can reduce fever and pain. Over the counter medications including antihistamines, decongestants, and cough suppressants are available, but their effectiveness is variable and they do nothing to change the course of the illness. If you had good experience with any of these medicines to lessen nasal congestion, runny nose, or cough, it is certainly reasonable to continue. For many runners, though, these medications may cause side effects such as jitteriness, rapid heartbeat, interference with sleep, dry mouth, stomach upset, and sedation. Humidification efforts go hand in hand with fluids and include salt water gargle, salt water nasal rinse, and a bedside (cool-mist) vaporizer. First morning congestion can be lessened or relieved with a hot shower or hot fluids. My favorite: hot tea, lemon, and honey (no therapeutic claims, it just feels good!).

If symptoms continue beyond 7 to 10 days, if fever, cough, headache, fatigue or labored breathing are prominent, or if influenza is suspected, medical evaluation is warranted. The sore throat symptoms

listed above form the basis for the “modified Centor score” that can be used in the decision to do strep testing and treat with antibiotics. As mentioned, most sinus infections and acute bronchitis may still be viral infections, and up to two-thirds of people with signs of sinus infection respond well to general supportive measures. However, there is a large enough percentage of pneumonia that is caused by bacteria that warrants the treatment with antibiotics for community-acquired pneumonia. Antibiotics for other conditions can be considered in individuals with certain risk factors (diabetes, asthma, treatment with steroid medication). If influenza is suspected, treatment with anti-viral medication is most effective if started within 48 hours of the onset of symptoms, and there is reliable office testing to determine who will benefit from treatment if the diagnosis is based on symptoms alone is uncertain.

An interesting thought: As runners, do we have greater or lesser chances of getting these infections than the general (sedentary) population? It is reported that “upper respiratory infections abound” at the winter and summer Olympic Games, and several observational studies suggest that modest physical activity may lower one’s chances of URTI. At the other extreme, though, there is a reported increase in the occurrence of URTI in the 2 weeks following participation in a marathon or ultra-marathon. A “J-shaped” curve of risk-benefit related to exercise has been proposed (numbers on the left are for comparison of the chances of getting URTI and do not represent actual risk percentages).



We get this information from studies that go back to the 1980’s. For example, a study of the 1987 Los Angeles Marathon recorded a 12.9% occurrence of URTI symptoms in the week following the race in marathon finishers compared to only 2.2% in control (non-marathon) runners. Similar reports come out of the 56K Cape Town ultra-marathon and the Comrades ultra-marathon and suggest the risk is greatest in the 2 weeks after the race. Studies such as these suggest that running more than 96K (60 miles) per week doubles the chances of URTI compared to logging under 32K (20 miles) per week. Further studies suggest that recreational running of 25 miles per week confers a protective effect when compared to

running just 7.5 miles weekly. There is, however, a significant limitation to these studies. In all of them, there was no actual diagnosis of URTI by medical personnel. The presence of illness was based entirely on self-reported questionnaires or symptom checklists, and the presence or absence of illness (and the causative agent) was not verified. So while the “J-curve” is frequently cited in media articles geared to runners, it is not by any means proven. I will not disagree with the overall health benefits of exercise, but those who exercise may employ additional means of well-being to avoid illness. More importantly, I would never advise a runner to refrain from endurance training based on these data alone. But as a position statement, the American College of Sports Medicine supports the view that moderate physical activity exerts less stress on the immune system than does prolonged and intense exercise, and that regular and moderate exercise lowers the risk of respiratory infections.

Back to the training plan and the runs. You’ve got a cold, now what do you do? Perform a “neck check”, as first mentioned in an article by Eichner in 1993 in the journal *Physician and Sports Medicine*. Simply stated, if one’s symptoms are confined to “above the neck”, meaning nasal congestion, sneezing, post nasal drip, headache, sore throat, or hoarseness, it is OK to run and train. If you pass the “neck check”, do the “10 minute trial”. Start your workout at half-speed or intensity for 10 minutes. If you feel OK, increase the effort and finish the run. If you feel terrible, stop the run, take some time off, get some rest, and recover from the illness. If, on the other hand, you “fail the neck check” and your symptoms are “below the neck”, meaning cough, sputum, shortness of breath, or if you have fever or significant fatigue, it is wise to stop running and take a break for a few days. Intensive exercise can be safely resumed in 3 to 5 days when symptoms are resolved. Eichner’s neck check is widely quoted in the lay and scientific literature, but I have yet to find any studies that examine its validity. It is what comes down to an “expert recommendation” or “consensus opinion”. Keep in mind, though, that there are distinct drawbacks to running when you’re feeling ill. If fatigue is a prominent symptom, you may not have the stamina to hit the goal of that hard workout. Muscle strength is decreased in viral infections. Fever and increase in the rate of breathing, common symptoms even with the common cold, cause greater fluid losses at rest, and extra care is needed for hydration under these conditions. It is likely that your body’s defenses against infection may raise your resting heart rate and thus alter your heart rate response to exercise. More effort, higher heart rate, less well hydrated, slower run, equals less training effect. Add to this a theoretical consideration: I mentioned coxsackie viruses as common causative agents. Most of these are coxsackie A strains. However, infections with coxsackie B occur and can be associated with serious illness such as myocarditis (viral infection of the heart muscle, resulting in cardiomyopathy and heart failure). We do not know the actual incidence of this and it is not known if endurance exercise allows infection to overtake the heart. It is cited as another reason to err on the side of taking a couple of days off. Conclusion: there is no reason to refrain from mild exercise with a common cold. Consider these guidelines and let your symptoms and the way you feel guide your decision to run and train.

Finally, when running this winter, prevention of respiratory infections is the best course of action. Several measures can be recommended:

1. Eat a well-balance diet, as you would throughout all of your training. Avoid skipping meals and include proper amounts of carbohydrate in meals and recovery foods. Supplements have not been

shown to reduce the risks of respiratory infections. Emphasize fruits and vegetables among your carbohydrate sources; the vitamins and minerals in these are likely more effective in preventing infections than those in supplements (with research demonstrating no benefit for supplements of zinc, glutamine or vitamin C). Carbohydrate-containing recovery foods have, in fact, been shown to reduce the frequency of URTI symptoms in those training.

2. Avoid overtraining. If you are following an on-line training plan or a self-directed plan, carefully monitor your fatigue level and allow for adequate recovery, especially if you are combining intensity (speed work, tempo runs) with distance (long runs). If you are working with a coach, keep him/her informed of your health and well-being. They want to know this as much as they want to know your splits.

3. Wash your hands frequently. Soap and water not only kill “germs”, but the rubbing action and rinsing with water provide a physical means of removal that does not occur with alcohol based hand cleansers.

4. Avoid sick people. Suggest that ill friends/co-workers stay home and not expose others. Maybe the group hug, fist bump, or congratulatory handshake after the run can be put off! Don’t share water bottles. And, on the flip side, stay home and don’t expose others if it’s you that is ill.

5. Get adequate sleep. This falls under the “adequate recovery” guideline above, but we all know how easy it is to skimp on this. We all do very well when we budget our time and fit in our runs. Let’s do the same when it comes to 8 hours a night.

6. Save weight loss for another season. Losses in weight are associated with a theoretical drop in immunity but an observed increase in respiratory infections in those who exercise.

7. Avoid putting your hands to your eyes, nose and face. I know, it’s nearly impossible, since it’s estimated that we touch our faces nearly 30 times or more a day, but it’s worth the effort. It goes along with frequent hand washing.

8. Most of us are not elites and do not earn our livelihood through running and competing. Those in our area with elite-like performance still have a day job. Meaning, we all have to deal with life and its stresses. Mental stress has been linked to an increase risk of URTI. Control life’s stresses to the extent possible. Share your running achievements with others and get support from family or co-workers. Give yourself credit when you have a good workout, and don’t be too hard on yourself when the “garmin” says you missed your splits. We all make this mistake and stress out over our runs and training schedules, but running should be our stress reliever!

9. If you have asthma, if you live in second-hand smoke surroundings, or if you yourself smoke, get the pneumococcal vaccine to reduce the chances of pneumococcal pneumonia. And get your flu vaccine! It is recommended for everyone.

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