A person’s level of physical activity influences their risk of infection, most likely by affecting immune function. Regular moderate exercise reduces the risk of infection compared with a sedentary lifestyle but very prolonged bouts of exercise and periods of intensified training are associated with increased infection risk. There are several lifestyle, nutritional and training strategies that can be adopted to limit the extent of exercise-induced immunodepression and minimise the risk of infection.

Introduction
This topic affects everyone because all people get infections and the amount of exercise people undertake affects their susceptibility to infection. Acute bouts of exercise cause a temporary depression of various aspects of immune function that will usually last for 3 to 24 hours after exercise, depending on the intensity and duration of the exercise bout. Several studies indicate that the incidence of symptoms of upper respiratory tract illness (URTIs) is increased in the days after prolonged strenuous endurance events and it has been generally assumed that this reflects the temporary depression of immune function induced by prolonged exercise. More recently it has been proposed that at least some of the symptoms of URTI in exercisers are attributable to upper airway inflammation rather than to infections. Periods of intensified training have been shown to depress immune function and although elite athletes are not necessarily more susceptible than other people, this is a concern for athletes as even minor infections may compromise resistance to common minor illnesses, particularly if the infection is associated with upper respiratory tract infection.

Several lifestyle, nutritional and training strategies that can be adopted to limit the extent of exercise-induced immunodepression and minimise the risk of infection.

Minimise contact with infected people, young children, animals and contagious objects.

Keep a distance to people who are coughing, sneezing or have a ‘runny nose’, and when appropriate (or ask them to wear) a disposable mask.

Wash hands regularly, before meals, and after direct contact, with potentially contagious people, animals, blood, secretions, public places and baths.

Use disposable paper towels and limit hand to mouth contact when suffering from respiratory or gastrointestinal symptoms.

Carry alcohol-based hand-washing gel with you.

Do not share drinking bottles, cups, towels, etc with other people.

While competing or travelling, choose cold beverages from sealed bottles, avoid raw vegetables and undercooked meat.

Wash and peel fruit before eating.

Quickly isolate any individual with infection symptoms from others.

Protect airways from being directly exposed to very cold and dry air during strenuous exercise by using a facial mask.

Ensure adequate dietary energy protein and essential micronutrient intake.

Avoid crash dieting and rapid weight loss.

Ensure adequate carbohydrate intake before and during strenuous prolonged exercise in order to limit the extent and severity of exercise-induced immunomodulation.

The efficacy of most so-called dietary immunostimulants has not been confirmed. However, there is limited evidence that some flavonoids (e.g., quercetin) and Lactobacillus probiotics can reduce URTI incidence in highly physically active people. Daily ingestion of probiotics could also reduce risk of gastrointestinal infections.

Wear appropriate outdoor clothing in inclement weather and avoid getting cold and wet after exercise.

Get adequate sleep (at least 7 hours per night is recommended). Consider monitoring sleep quality and quality and using small, non-invasive movement sensors.

Wear flip-flops or similar footwear when going to the showers, swimming pool and locker rooms in order to avoid dermatological diseases.

Keep all other life factors to a minimum.

Should infection occur: exercisers must use some basic guidelines for exercise during infectious episodes (Kusmin, 2005) before being referred to a doctor.

• First day: Rest and low-intensity exercise or walking to the extent of mild upper respiratory or gastrointestinal symptoms. Avoid all exercise when experiencing symptoms like muscle/joint pain and headache, fever and general feeling of malaise, diarrhoea or vomiting.

• Second day: Avoid exercise if fever, diarrhoea or vomiting present or if coughing is increased. If no fever or malaise is present and there is no worsening of the above collateral symptoms; undertake light exercise (heart rate < 120 beats per minute) for 30-45 minutes (indoors during winter), by yourself.

• Third day: If fever and URTI (or gastrointestinal) symptoms are still present, consult your doctor. If no fever or malaise is present and there is no worsening of initial symptoms; undertake moderate exercise (heart rate < 150 beats per minute) for 45-60 minutes, preferably indoors and by yourself.

• Fourth day: If there is no symptom relief, do not try to exercise and visit your doctor. If this is the first time such an event occurs, take one day without fever and with improvement of URTI or gastrointestinal symptoms before returning to exercise.

Finally, it is important to stop training and consult your doctor as quickly as possible when infection occurs or if initial symptoms become worse, coughing persists or breathing problems during exercise occur. Risk of infection increases with increased exercise intensity and take an extra day off if recovery is incomplete.

References


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