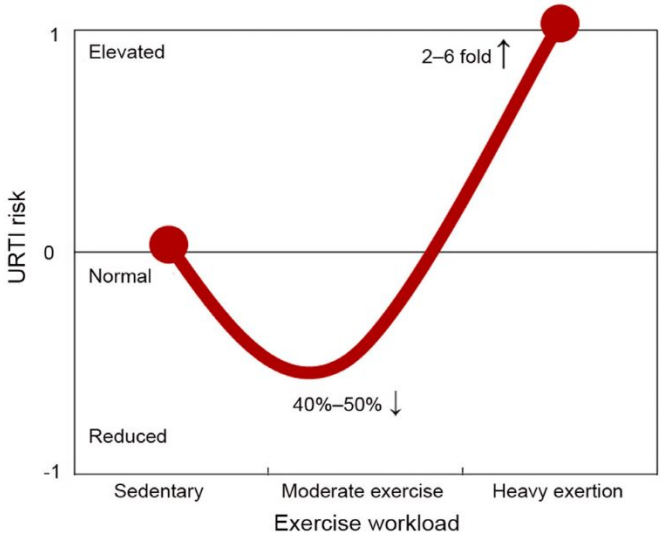
The Link Between Exercise and your Immune System

Now more than ever, people are concerned about the strength of their immune system. The article "The compelling link between physical activity and the body's defense system" reviews recent research done in this field. There are researched methods which have been shown to increase immune system activity as well as research to show which activities may suppress the immune system.

Light to moderate exercise will cause a short-term increase in immune system activity and a boost in metabolism. Light to moderate exercise may seem vague, therefore, some studies have clarified the definition. Moderate exercise is defined as, working at 60 percent of your maximum heart rate for about an hour or a 6 on the RPE scale (rate of perceived exertion out of 10). Moderate exercise will help stimulate immune surveillance which is the immune system actively searching the body for potential threats. Regular exercise training will have an overall anti-inflammatory effect on the body. Habitual exercise will also mitigate the effects of age-related dysfunction on the immune system.

There is a short-term reduction in immune function following prolonged intense exercise, such as running a marathon or a short burst of maximal output, such as a powerlifting competition.



continuum and risk for upper respiratory tract infection (URTI). Other factors such as travel, pathogen exposure, sleep disruption, stress and dietary patterns that may influence this relationship
This figure was adapted from Nieman.95

Measures such as good sanitation, hydration, sleep, stress management, and nutrition become increasingly important when exerting yourself maximally. A well-studied example is the risk of developing an upper respiratory illness by those who overexert themselves. Those who are very inactive are also at risk for developing illness, although, less risk than the group that push themselves too far. The lowest risk group is the group who have a moderate exercise workload (40-50 percent lower chance of illness).

Some vigorous (70-80 percent of our maximum output) activity is important in transporting our immune cells from our circulation (bloodstream) into our tissues. However, managing how much vigorous activity we do is critical and be sure to listen to any signs your body gives you in terms of overtraining.

Carbohydrate intake following exercise and during long-duration exercise has been shown to reduce inflammation. However, this is not an excuse to load up on Doritos after a workout as physically active and lean individuals are shown to have lower inflammation throughout their body. The carbohydrate sources which are preferable will contain polyphenols, which are found in plant-based foods. Some examples of foods high in polyphenols include: Spices, herbs, tea, red wine (in moderation), dark berries, seeds, nuts, olives, vegetables, and fruit. These foods will help support the immune system producing anti-inflammatory, anti-viral, and antioxidative effects.

In conclusion, to strengthen immunity, hold off on marathon training or powerlifting competitions during a pandemic -instead, focus on moderate and frequent exercise. A large majority of the food consumed should come from plants which contain compounds to assist the immune system with its antiviral effects.

Reference: Nieman, D., & Wentz, L. (2019). *The compelling link between physical activity and the body's defense system*. Journal of Sport and Health Science, 8(3), 201-217. doi: 10.1016/j.jshs.2018.09.009