

THE LOWDOWN ON HIGH VOLUME TRAINING

Regular exercise can boost your immune system but too much of a good thing may not always be great for your health, advises Cindy Ng, senior physiotherapist, Singapore General Hospital.

The human immune system is an amazing constellation of responses to attacks from foreign agents and pathogens such as viruses and cell damage. Studies reveal that exercise, a stressor, induces considerable physiological changes in the immune system.

Acute and intense muscular exercises may increase the stress hormones in the blood which includes catecholamines and cortisol. Extreme, high intensity and long duration exercises have been shown to reduce one's immunity. Overtraining syndrome (OTS) occurs when an athlete is training vigorously, yet his or her performance deteriorates.

One sign of OTS is suppressed immune function, with an increased incidence of upper respiratory tract infection (URTI). An increased incidence of URIs is also associated with high volume or intensity training as well as excessive exercise (EE), such as a marathon, intense swimming and after incremental treadmill running to exhaustion, manifesting between three and 72 hours post-activity.

Heavy exercise or overtraining can impair the immune system leading to immune suppression, which is due to cell trauma or damage. You should also not perform any vigorous exercise during acute infections as it can increase viral replication and inflammation.

Low to moderate exercises, on the other hand, tend to improve immunity by increasing the cells involved in combating

infections. Sub-maximal exercise or low to moderate intensity exercise do not reduce salivary immunoglobulin. It is found that natural killer cells activity increased when 30 elderly, moderately obese, sedentary women underwent 15 weeks of walking.

Regular exercise helps reduce stress or depression, by releasing endorphins that make you feel good. Reducing stress will improve your defense against diseases as stress can affect your immunity. Regular exercise also improves the vascular system, heart rate response and metabolic profile. It can enhance insulin sensitivity via an induction of anti-inflammatory cytokines.

Adipose tissues are highly active and store calories as triglycerides. They also secrete a large number of highly active proteins, regulating metabolism as well as inflammation. Doing the right mix of aerobic training at moderate intensity and suitable resistance exercises with two to three sets of 10 to 15 repetitions, thrice a week, will help to reduce your body fat and thus improve your immunity by reducing inflammatory markers, thereby improving your metabolism.

Reference:
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