

Exercise your immunity

By Michael Clark

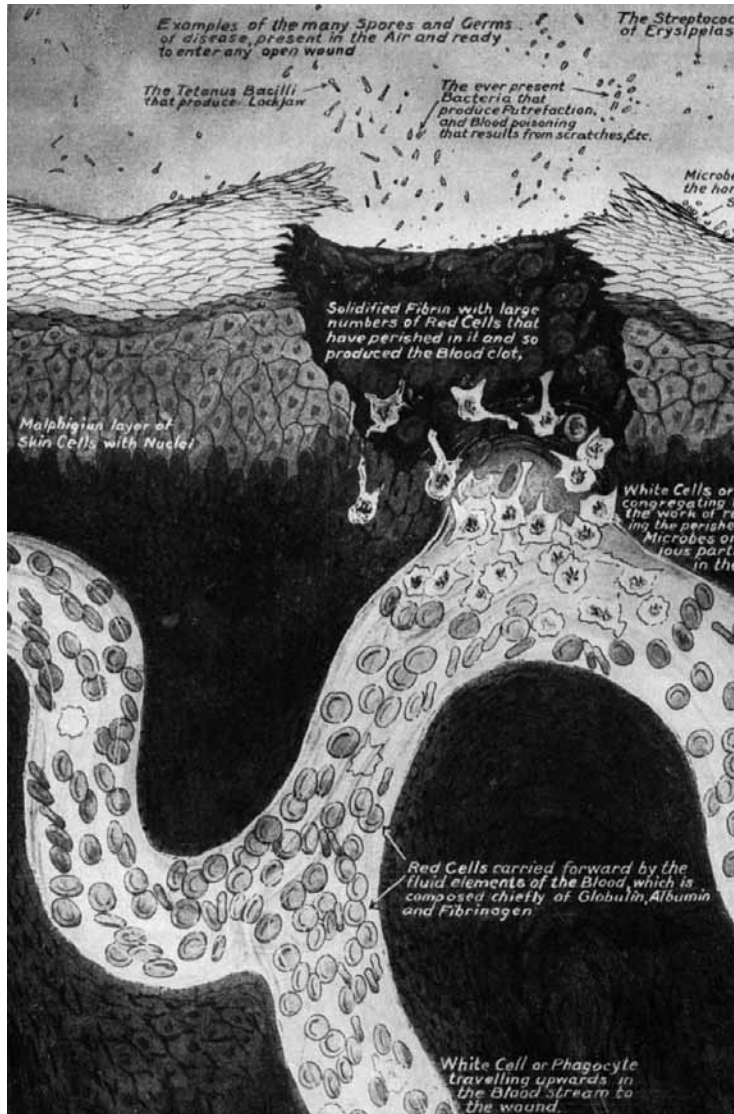
The immune system is one of the most complex in the body. It includes physical barriers, such as the skin and linings in the mouth and nose, hundreds of different types of specialized cells ranging from simple in function to unbelievably complex in function, cellular messengers, antibodies, and an entire lymphatic system to provide a recognition and transport to fight various types of foreign invaders. Recent media has begun to reference the benefits of exercise as they relate to the immune system. Therefore, this article will provide you with more detail on how and why exercise truly can boost your immunity.

To begin, our immune system consists of two parts; the innate immune system and the acquired immune system. Innate immunity refers to the barriers given to us from birth, like the skin, body temperature, and specific immune cells in the blood. This is our first line of defense against viruses and bacteria. If our innate immunity fails to ward off infection, then we must rely on the ability of the acquired immune system, which depends on the mobilization of even more specialized immune cells called T cells, and B cells. We develop acquired immunity throughout life by exposure to bacteria, viruses, and vaccinations. Like other systems in the body, both the innate and acquired immune systems respond positively to exercise.

Most of our knowledge of how exercise affects the immune system comes from studies involving aerobic

exercise. Aerobic exercise can be defined by brisk walking, jogging, cycling and the like. During a single aerobic exercise session, most of the cells that comprise the innate and acquired immunity actually increase in number within the blood. It's thought that the increase is due to a recirculation of immune cells that would otherwise be in the organs and extremities. Due to this increase in immune cells within the blood, immune function is in fact elevated during and shortly after aerobic exercise.

What is even more interesting is how the immune system responds differently to moderate exercise, such as light jogging, versus prolonged high intensity exercise, like long distance treadmill running. Both moderate and high intensity exercise elicit increases in immune function, but prolonged high intensity exercise, such as treadmill running for more than 60 minutes, elicits a much higher response. This higher response can lead the immune system into a post exercise "dip," in immune function, causing an increased susceptibility to an upper respiratory tract infection (URTI), or a head cold. However, moderate intensity exercise,



and for long periods, i.e. distance runners, are at the highest risk for URTI, with sedentary individuals having an average risk of infection; roughly three times per year. Finally, in its 2008 report on physical activity and health, the U.S. Department of Health and Human Services cites the increased immunity caused by exercise as a strong potential mechanism to decrease the risk of the most common types of cancer.

The immune system is incredibly complex. It consists of physical and cellular barriers that work together to fight infection. From the studies to date, moderate exercise and short-term vigorous exercise has been shown to provide a benefit to the immune system at the cellular level, and can decrease the number of times an individual gets sick each year. To reap the benefits, all you need is to take a brisk walk for 30 minutes a day, five days a week. This will be enough

or short-term vigorous exercise, does not cause the post exercise dip.

There are broader implications concerning the benefits of physical activity and the immune system. Research shows that individuals who maintain a regular exercise schedule have the lowest risk for an URTI. On the flip side, those who exercise at high intensities

exercise to stimulate the immune system, and to increase overall health and fitness.

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