

Exercising our immune system

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Elite athletes - often perceived as the epitome of health and fitness – may be more susceptible to common illness and are therefore proving useful in helping scientists understand more about the immune system.

Nic West, a PhD candidate at Griffith University, has enlisted elite rowers to help him study the role of salivary proteins that act as a barrier to infectious agents such as respiratory viruses.

He said salivary proteins such as lactoferrin and lysozyme act to prevent microbes from infecting the body and typically increase as the body fights off infection. They have a direct antimicrobial effect and also help modulate other aspects of the body's immune response.

“We want to understand the mucosal immune system better and the factors that increase a person's susceptibility to illness.”

An initial observational study comparing elite rowers with sedentary individuals over five months clearly showed that exercise was associated with a significant reduction in the concentration of lactoferrin.

“Theoretically, exercise is a stress on the body and leads to a greater susceptibility to illness. The decrease in salivary proteins, one of the body's first lines of defence against infection, may help explain this.”

However a second study comparing the concentration of salivary proteins in rowers at rest, after moderate exercise, and after high intensity exercise, showed that exercise increased rather than decreased

lactoferrin and lysozymes in the short term.

“Salivary proteins increased by about 50 per cent following exhaustive exercise which may be a transient activation response that increases protection in the immediate post-exercise period,” he said.

His research over the next 18 months will test the effectiveness of a nutritional intervention in ameliorating the effects of hard physical activity on the immune system.

“There is some research to indicate that probiotics and resistant starches are useful in boosting mucosal barrier function.”

Mr West said the beauty of the immune system was that it had a natural ‘redundancy’ – with overlapping components in the event of any one protective mechanism failing.

“So we also have mechanical barriers against infection such as the cilia in our nose, and immunity led by cells such as lymphocytes.”

Source: Research Australia

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