

# Carbs during workouts help immune system recovery

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Dr Jonathan Peake and Dr Oliver Neubauer found carbs during intense exercise could help the immune system recover. Credit: Queensland University of Technology

Eating carbohydrates during intense exercise helps to minimise exercise-induced immune disturbances and can aid the body's recovery, QUT research has found.

Dr Jonathan Peake and Dr Oliver Neubauer, from QUT's Institute of Health and Biomedical Innovation, led a research review of studies about [exercise](#) and immunity.

They found the best way to avoid unfavourable changes in the [immune](#) system during a post-workout recovery was consuming carbs during or immediately after the exercise.

The paper was published in the *Journal of Applied Physiology*.

"There is intense interest in what athletes can do to recover faster from exercise," Dr Peake said.

"Among various nutritional strategies to counteract immune depression during exercise recovery, carbohydrates have proven the most effective. Ingesting carbohydrates during [vigorous exercise](#) may help, because carbohydrates maintain blood sugar levels.

"Having stable [blood sugar levels](#) reduces the body's stress response, which in turn, moderates any undesirable mobilisation of immune cells. However, more research is warranted to verify that this also helps to prevent infections and illnesses."

Dr Peake said exercise can increase and decrease the number of immune cells in blood.

But he said studies did not support the long-held belief that exercising regularly without allowing sufficient time for the immune system to return to normal increased the risk of a weakened immune system.

"People often have fewer natural killer white blood cells after a workout but we now believe they move to other parts of the body, rather than being destroyed.

"Exercise is a form of stress and more vigorous exercise creates more physiological stress which causes physiological and biochemical changes in the body. To tackle the potential threats these changes highlight, the [immune cells](#) may simply move out of the blood stream to the lungs, for example.

"This still leaves our bodies vulnerable to infections and, generally

speaking, the more strenuous the exercise, the longer it takes for the [immune system](#) to return to normal.

"Epidemiological evidence suggests that regular moderate exercise protects against upper respiratory illnesses, like the common cold, whereas regular [intense exercise](#) increases the risk of upper respiratory illnesses."

Dr Neubauer said the research suggested most people only need carbohydrates during high-intensity or prolonged exercise of 90 minutes or more.

"The consumption of carbohydrates before and during strenuous exercise not only improves endurance performance, but it can also minimise exercise-related immune disturbances," he said.

"Between 30 and 60 grams of carbohydrates every hour during exercise help to support normal [immune function](#). Examples of carbohydrates that could be consumed during exercise include [carbohydrate](#)-containing fluids, gels and bars consisting of different carbohydrates such as glucose and fructose. Alternatively, bananas may also do the job.

"As general advice for people who train for and participate in endurance events, any products should be tested if they are tolerated in the field.

"Consuming carbohydrates in the first few hours immediately after [strenuous exercise](#) also helps to restore immune function. This is especially important in situations where the recovery duration between two consecutive exercise sessions is short, which is often the case for athletes."

The researches did not find sufficient evidence to recommend 'immune-boosting' supplements, for example antioxidants.

"A diversified and well-balanced diet is most likely sufficient to help maintain immune function following longer-term exercise training.

"Sleep is recognised as important for maintaining immune function. However more research is needed to understand the influence of sleep on immunity in athletes."

**More information:** Jonathan M. Peake et al. Recovery of the immune system after exercise, *Journal of Applied Physiology* (2016). [DOI: 10.1152/jappphysiol.00622.2016](https://doi.org/10.1152/jappphysiol.00622.2016)

Provided by Queensland University of Technology

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