

# Does using extra oxygen really help football players recover, or is that hot air?

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In these steamy days of late summer, when large men in pads batter one another on the playing field, some try to speed their recovery on the sidelines by breathing pure oxygen.

Eagles tight end Josh Perkins did it during this year's final preseason game against the New York Jets, for example, when the temperature at 7 p.m. kickoff was a toasty 86 degrees.

Is the practice sound science or hot air?

Some physicians have ridiculed the use of 100 percent oxygen, noting that athletes recover perfectly well by [breathing](#) regular air, which is 21 percent oxygen. Few researchers have formally compared the two. But evidence suggests that breathing the pure gas might, just might, provide players with a small edge.

In a 2017 review of eight studies on the topic, Canadian researchers found that breathing 100 percent oxygen during recovery seemed to provide a mild boost in subsequent performance—going by such measures as the amount of time people were able to exercise until reaching exhaustion.

Arsh Dhanota, a sports medicine physician in the University of Pennsylvania health system who was not involved in the review, cautioned that the amounts of recovery time varied widely among the eight studies, making a firm conclusion difficult. Still, he said, pure

oxygen might help.

"We can't say definitively, but there appears to be a positive effect," said Dhanota, director of Penn Medicine's Regenerative Sports Medicine Program.

David Gealt, a sports medicine physician at the Cooper Bone and Joint Institute in South Jersey, is unconvinced.

"The only place where it may give you some benefit is if you're playing in Mile High Stadium in Denver," where the air is thinner, he said. "If you're playing down in Philadelphia, it's not a big deal."

A key measure is oxygen saturation: how much oxygen is being carried by the iron-rich proteins in red blood cells called hemoglobin. An indirect reading of this vital statistic can be made with a device on the finger called a pulse oximeter. Values in the high 90s are considered normal, but can drop below 90 percent during intense exercise.

In a 2010 study, researchers measured the [oxygen saturation levels](#) in elite athletes who underwent intense workouts on rowing machines, both with breathing pure oxygen and regular air in between sessions.

The result: When receiving pure oxygen, the athletes rebounded to normal [oxygen-saturation](#) levels in 36 seconds, on average, compared with 49 seconds with regular air.

Though the 13-second difference was statistically meaningful, it was nothing to get excited about, said lead author Peter Peeling, an associate professor at the University of Western Australia's School of Human Sciences.

"The premise of the supplemental oxygen is to improve the saturation of

the hemoglobin between bouts of exercise, however, the body naturally does this itself, and the time difference between doing it with supplemental oxygen or doing it via breathing ambient air is negligible," he said.

Still, in professional sports, a team might conclude that a 13-second edge is worth it, said Dhanota, the Penn Medicine physician.

"You're in between plays, there's an intense game going on," he said. "Seconds matter in whether you can get back in the game or not."

The Eagles did not make a trainer or physician available for comment. But at least in some cases, the team seems to agree that [oxygen](#) can help these Birds fly.

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