THOUGHT LEADERSHIP | HUMAN PERFORMANCE

Availability Is the Best Ability

Why protecting shared air may be one of the most overlooked investments in human performance

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Author's Note: *All of us have likely missed critical meetings, vacations or other important events due to unforeseen respiratory illnesses we "unfortunately caught". The social and/or economic burden can be highly disappointing to say the least. And yet many people still surprisingly think getting sick is just bad luck or unavoidable and do next to nothing about their environments to minimize the reasonably controllable infectious aerosols all around us. In 10 years, we'll look back and wonder why we ever would have lived that way… the same way we now expect clean drinking water and safe food regardless of where we get them. This paper attempts to raise awareness about the opportunities afforded to those who can decide today to proactively change the environments where they work, play and live.*

Elite sports has become an industry of marginal gains. Teams devote extraordinary attention to strength and conditioning, nutrition, sleep, recovery, hydration, biomechanics, injury prevention, data analytics and sports medicine. The objective behind virtually all of it is the same: put the best possible athlete on the field, at the best possible level of performance, when the game begins.



Bill Parcells – NFL head coach – Super Bowl Champion (XXI, XXII) with the New York Giants

But all of those investments make one fundamental assumption—that the athlete is available.

A perfectly conditioned player who wakes up with a fever cannot contribute. A meticulously managed training load is irrelevant when a respiratory infection removes a starter on matchday. And when illness moves through a locker room rather than affecting one individual, the consequences can extend beyond a single absence to compromised preparation, degraded performance and, at the wrong moment, a season-defining result.

That is why the now common sporting maxim often attributed to Bill Parcells deserves to be taken more literally: Availability Is the Best Ability.

Availability Has Economic Value

There is already strong evidence that player availability and sporting success move together. In the long-running professional European football (soccer) UEFA Champions League injury study, higher match availability was associated with better final league position and more points per league match. That finding is intuitive. Coaching, tactics and talent matter only to the extent that the people possessing them are available to perform.

A study covering 73 professional European football teams recorded 1,914 illness episodes over more than 1.26 million player-days, an incidence of approximately 1.5 episodes per 1,000 player-days. The median absence was three days. Respiratory illness accounted for 58% of cases and gastrointestinal illness another 38%. Another 2026 prospective study of professional hockey players found that 93% experienced at least one acute respiratory infection during a single season; more than one-third of symptomatic players missed a game, while another 36% played while ill—illustrating that conventional absence statistics capture only part of the performance cost.

That is precisely what makes illness an interesting economic problem. While illness represents a smaller share of time loss than injury, it does not have to be the largest source of lost availability to be worth addressing. A club cannot install a light fixture that prevents a torn ACL. It cannot disinfect the air and eliminate a broken ankle. But a meaningful portion of infectious-disease risk is environmental and therefore potentially addressable.

Clubs should quantitatively assess their airborne risks, the opportunity they have to mitigate them and the economic value proposition or return on investment possibilities. In Far UV's own facility-level modeling with its Krypton lighting — available on request for organizations evaluating an installation — a typical professional sporting facility installs for roughly $100,000–150,000 against a modeled $1–5 million in avoided availability loss per season, with payback frequently inside a single season and, in several modeled facilities, inside the first

month. As with any vendor's return-on-investment case, it's worth pressure-testing against your own roster value and illness history. The proposition is not that germicidal ultraviolet (GUV) light guarantees championships. It is that an expensive organization whose performance depends on human availability should seriously evaluate a relatively inexpensive way to reduce an avoidable component of availability risk.

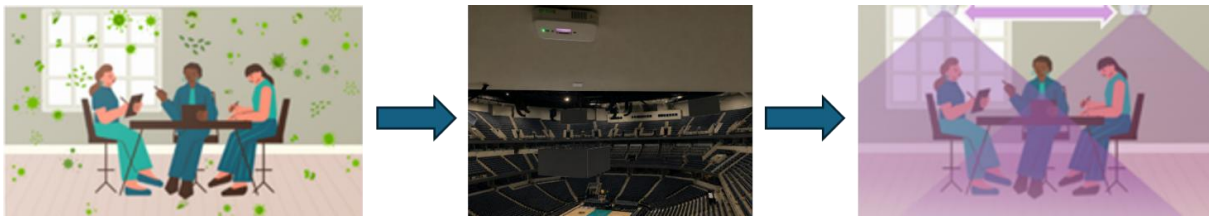
The Blind Spot Is the Air

Sports medicine is principally focused on the athlete. Infection prevention requires looking at the athlete's environment.

Players and staff repeatedly gather in changing rooms, treatment rooms, gyms, dining areas, meeting rooms, buses, aircraft and hotels. One infectious person can introduce pathogens into a shared indoor space before anyone knows that person is sick. Exhaled air mixes with room air, and everyone else in the room breathes some portion of it. The exposures may occur days before the symptoms that eventually remove the players from the lineup.

Germicidal ultraviolet light offers another layer of protection alongside ventilation and filtration. Upper-room GUV has a decades-long history of using UV-C energy above the occupied portion of a room to inactivate airborne microorganisms as room air circulates through the treated zone. CDC guidance describes upper-room GUV as a supplemental control that can reduce airborne infectious exposures in occupied group settings when properly designed and used with other measures.

A newer approach is far-UVC, typically centered around 222 nm wavelengths, which can be engineered for use throughout occupied spaces within applicable exposure limits. Room-scale research has produced striking pathogen-reduction results. One 2022 study reported a 98.4% steady-state reduction in airborne Staphylococcus aureus in a room-sized chamber, while a 2024 occupied-room study using ceiling-mounted 222 nm fixtures reported a 99.8% reduction in airborne infectious murine norovirus.



Reducing airborne pathogen load is not the same as proving an equivalent reduction in athlete illnesses; immune systems vary, as do the environmental conditions of occupied spaces. That said, controlled hospital studies in South Africa and Peru found roughly 72–80% reductions in actual airborne tuberculosis transmission using upper-room GUV. This evidence helped support CDC and World Health Organization recommendations for upper-room GUV as a control for infectious aerosols in appropriate settings. Preliminary results from ongoing research in the same South African facility have also reported approximately 91% reduction in tuberculosis transmission using occupied-space 222-nm Far-UVC at the highest dose tested, with lower-dose studies continuing.

These studies demonstrate that the environmental variable itself can be changed dramatically. For a business in which a single unavailable employee may represent millions of dollars of talent, that is difficult to dismiss as merely a facilities issue.

Some Leading Clubs Have Already Acted



Professional football provides intriguing early examples. In 2020, PSV Eindhoven installed UV-C upper-air fixtures across Philips Stadium and its training campus, including the home and visiting changing rooms, training-ground changing rooms and medical facilities. PSV's own medical leadership framed the investment around a simple elite-sport reality: every fit player matters, and protecting health contributes to success on the field.

The club has subsequently been remarkably successful. PSV captured the Dutch championship in 2023–24, 2024–25 and 2025–26—three consecutive national titles. Its 2025–26 championship came with a record 19-point winning margin.

Did upper-room GUV win those championships? No single variable does. It's plausible — likely, even — that healthier players missed fewer days and performed better when they did play; that's closer to common sense than a controversial claim. What the evidence can't do is isolate GUV's specific share of a full season's outcome from talent, coaching, recruitment, finance, tactics and the hundreds of other variables all moving at once.

But the more interesting question may be why a sophisticated sports organization considered air disinfection worth installing at all. RB Leipzig reached a similar conclusion, becoming the first Bundesliga club reported to install upper-room UV-C technology in its players' changing area at Red Bull Arena. Leipzig finished third in the Bundesliga in 2025–26 after a seventh-place finish the prior season.

Is clean air their secret advantage? A better question is whether these clubs recognized an availability risk that much of professional sport still treats as unavoidable.

American football is beginning to provide similar signals. In 2025, the Miami Dolphins installed 222 nm far-UVC fixtures in four rooms at the team's Baptist Health Training Complex and have since extended it throughout their facilities. The team's head athletic trainer explicitly connected the installation with reducing infectious spread and helping keep players healthy and available. The Denver Broncos have used UV-C systems for equipment and facility disinfection. These examples show that professional sports organizations already regard ultraviolet disinfection as a legitimate part of infection-control infrastructure.

The Betting Market Already Knows What Availability Is Worth

Perhaps the clearest economic evidence comes from an industry with no sentimental attachment to players at all: sports betting. Betting markets put an immediate price on availability.

When Baltimore Ravens quarterback Lamar Jackson was ruled out of a 2025 game, reporting showed the betting line moving by roughly five and a half points—from Baltimore being favored by approximately a touchdown to being favored by only about 1.5 points.

Nothing about the stadium changed. The opponent did not change. The rules did not change. One person's availability changed, and a multibillion-dollar market immediately repriced the expected outcome. **Sportsbooks understand something every team executive should understand: availability is an asset with measurable value.**

That does not mean every cold moves a betting line five points. It means the economic system surrounding sport already recognizes that losing the wrong player at the wrong time materially changes probabilities. No player is immune, and every team at every level faces this risk—not Noah Lyles at the Olympics, not Aaron Rodgers (whose case became more than a missed-game) and not Notre Dame football. If markets can price that risk within hours, organizations should be able to justify modest investments intended to reduce preventable causes of it.

The Principle Extends Far Beyond Sports

Sports is unusual only in having a real-time public market that prices this risk minute to minute. Most other fields have no such market — no one is booking odds on a surgeon or a trial attorney — but the underlying economics don't disappear just because no one is pricing them out loud. Consider a surgical team losing a specialist on the morning of a complex procedure. An Air Force mission grounded because both key mechanics are under the weather. A high-value trading desk missing the person responsible for a market or client relationship during a volatile session. A trial team losing its lead


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Tom Bostick, Lieutenant General (ret)
Former Chief of Engineers and
Commanding General US Army Corps of Engineers

attorney. A congregation losing its religious leader before a major service. Any executive team, flight crew, emergency department, control room or production crew can face the same problem.

The common denominator is not occupation. It is consequence of absence.

The relevant equation is straightforward: the more valuable and less substitutable the people, the more time they spend sharing indoor air, and the greater the operational consequence when one becomes unavailable, the more rational it becomes to manage airborne infection risk as infrastructure.

Organizations already insure these people. They recruit backups. They pay for medical care, wellness programs, security, ergonomic equipment, business-continuity planning and redundant technology.

Yet the air those same people share for hours every day is often treated as if illness were simply an uncontrollable act of nature.

It does not have to be.

From "Wellness" to Availability Infrastructure

The opportunity is not to promise a disease-free workplace or an undefeated season. It is to manage risk intelligently. Start by identifying the rooms in which critical people spend substantial time together. Measure ventilation and CO_2. Determine where shared-air exposure is highest. Improve ventilation and filtration where practical. Then evaluate in-room UV as another layer of protection that can be comparatively inexpensive and straightforward to install and maintain, prioritizing the spaces in which illnesses would have the greatest operational consequence.

That "measure first" approach is important: map the rooms, measure the shared-air conditions and demonstrate that a meaningful exposure exists before evaluating solutions. Several experienced in-room UV companies and professionals can help; many were active in the industry before the COVID-19 pandemic and hold NALMCO credentials.

It is important to distinguish among UV technologies because not all are equally suited to controlling infectious aerosols. In-duct UV, for example, treats only a portion of the air in an occupied space and was originally designed to improve HVAC coil efficiency. UV towers, whether robotic or stationary, typically target surface contamination and are often unsuitable for use in occupied spaces. In-room UV, by contrast, can deliver on the order of tens, hundreds or even a thousand or more equivalent clean air changes per hour under realistic room-mixing conditions — considerably higher still under ideal mixing — figures no in-duct or tower system approaches. That matters because people are usually the source of dangerous pathogens, and treating the spaces they occupy while they occupy them is central to effective aerosol infection control.

For professional sports, the comparison is particularly stark. According to Deloitte's Sports Business Group, promotion to the English Premier League can add at least £205 million in revenue to a club over the following three seasons—and substantially more if the club remains in the league. Each year, three clubs go up and three go down, and the difference over a season can turn on a single game that might have been drawn or won rather than lost with a star player unnecessarily absent. Organizations will spend heavily to make a player slightly faster, stronger or quicker to recover. Those investments may be entirely justified. But the return on all of them becomes zero on the day that player cannot participate.

Germicidal UV cannot score a goal, throw a touchdown pass, execute a trade, perform an operation or argue a case. What it can do is address one environmental pathway capable of preventing the person who can do those things from being present. **That is the real economic argument.**

The question is not, "Will in-room UV win us a championship?"

The better question is, "Given what an absence can cost us, why would we leave a preventable component of availability risk unmanaged?"

In sport, business, healthcare, public safety and national defense, talent matters. Preparation matters. Technology matters. Strategy matters.

But all of them begin with the same prerequisite.

You have to be there.

And that is why availability is the best ability.