The end of 'fast-guy injuries': inside the Packers' plan to keep Christian Watson and others on the field

The Packers have taken a new, scientifically backed approach to treating soft-tissue injuries. If it proves effective, the future of football will look very different.

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It’s not exotic pressure packages or a dual-threat quarterback on the opposing sidelines. It’s not an unstoppable receiver or virtuoso pass rusher. Teams can control those variables with scheme and personnel.

No, the one thing that beguiles football teams more than almost anything else? Soft-tissue injuries.

Hamstrings, calves, and groin muscles. They pull and tweak, “bite” and tighten, and it can be unclear why. Darnell Savage once called them “fast-guy injuries.” NFL teams need fast guys, but players who can fly can also get their wings clipped when their bodies betray them.

The Green Bay Packers know this well having witnessed several of their most superlative athletes like Eric Stokes and Christian Watson sidelined by soft-tissue injuries. However, the Packers’ approach to these players hints at a future where teams can control for the previously uncontrollable, where certain types of injuries can be mitigated before they happen using state-of-the-art technology and sports medicine.

Is this science fiction? No, it’s just science.

Rooting out the problem

Dr. Bryan Heiderscheit had seen cases like these before. Stokes and Watson, each of whom battled significant hamstring issues during the 2023 season, were sent by the Packers to the University of Wisconsin-Madison's Badger Athletic Performance where Dr. Heiderscheit serves as the director. He is also a part of the NFL and NFLPA's Lower Extremity Soft Tissue Injury Task Force, and his team has previously used grants from the NFL to research these types of mysterious injuries.

"It's mysterious in the sense that so many of us experienced it in our other lives and then recovered from it and been like, 'Hey, I'm back. Why are these guys out so much?'" Dr. Heiderscheit tells The Leap. "It has to do with that high level of demand of the sport.

"Any sport that involves high-speed running automatically brings an element of risk for hamstring-strain injuries."

In other words, it *is* a "fast-guy injury," and NFL athletes are outliers. They're the top 1%. Even with sophisticated testing, it's hard to determine if their muscles are working "normally" because normal for them isn't normal for most people.

According to Dr. Heiderscheit, the contributing risk factors are myriad, from not training enough to training too much or too quickly without a proper warmup. Added risk could even stem from biomechanics, the way someone naturally runs. Complicating matters, an athlete might not have any outward signs of a problem until it's too late.

"We might say if the athlete's pain-free and moving well, they're good, but that's all fine until you get them at a little higher intensity, and then that weak link snaps," Dr. Heiderscheit says. "That weak link is the thing we have to be able to detect earlier and address."

Previous injury also creates risk, a common thread shared by Watson and Stokes. According to the NFLPA's educational material for its players, a hamstring injury is the No. 1 predictor of future hamstring injuries. But it doesn't have to be a hamstring injury; any injury that requires recovery with or without surgery can cause complications for the systems in the body that underpin movement.

Before his rookie season, Watson had a cleanup surgery on his knee and his hamstring issues started shortly after, precisely the kind of issue fixing an old injury with surgery

was designed to prevent. And that's the dilemma: If there's another underlying issue, tending to one problem may unknowingly fail to address another, or worse, create a new one. And once the hamstring injuries start, they're more likely to reoccur, kickstarting this vicious and frustrating cycle.

This is where Dr. Heiderschiet comes in. Just because a player can feel back to full strength doesn't mean he truly is, and returning too quickly increases the risk of re-aggravation. If an injury causes asymmetry, that also has to be addressed through targeted rehabilitation.

"Obviously, the issues I've had in the past with hamstrings, not fully recovering from those strength-wise, I've been attacking the strength side of it, trying to get that symmetry back and it's been huge for me," Watson said during the Packers' offseason program in May.

"The thing with hamstring injuries is that symptoms are deceiving," Heidersheit says, adding, "You can feel fine and normal. That doesn't mean the muscle has recovered fully to be able to get back to that high level of sport that you did before. Many times, you've developed some level of compensation or you move differently to accommodate it."

When Watson went through his battery of tests in Madison, they found significant asymmetry, meaning the muscles were not working with matching strength. His gap, about 20%, was well above what would be considered normal. Watson said his goal was around 6% and that during spring practices he was in a normal range between 8-10%.

"One, it puts strain on the left side, and the left is going through a lot more," Watson said in May. "And then two, obviously when you're trying to be equal in power, it obviously puts a lot more stress on the one that's not as strong.

"So, that's been the No. 1 thing for me because that leads to fatigue as well. It's a bad place to be, so obviously that's been my No. 1 goal to just kind of eliminate that."

When one side of the body lacks the same strength as the other, it fatigues faster, elevating the risk of an injury. Asymmetry creates even more strain on the muscle. That doubles the problem because when an injury happens, a player like Watson has to attack re-strengthening a muscle that was hindered to begin with.

Mapping out the solution

Fixing the problem of soft-tissue injuries involves multiple stakeholders: teams and players. The NFL and its member teams have a responsibility to their players to employ best practices when it comes to their health, but they also have an incentive. Healthy players mean a better product on the field.

That's why the league started the Soft Tissue Injury Task Force in 2019. One of the critical accomplishments of the task force was to convince all 32 teams to share their player-tracking data. Every player wears a GPS tracker in the building to record speeds which tells the team more than just who is fastest. A player running below his baseline could indicate a problem or that he requires some rest. That can save the body from injury.

One team can't glean much about trends based solely on their data.

"You just don't have enough data with your players and your number of injuries to create the power of observation," says Dr. Alan Sills, the NFL's chief medical officer.

But as a league with hundreds of player inputs, the task force was able to spot trends. For instance, the biggest window where teams experience soft-tissue injuries was the first week of camp and the time between the end of the preseason and the beginning of the regular season.

"Now we have everyone's attention. Now we've said 'This isn't just a dry academic discussion on hamstring strains. It really does have an impact on winning and losing." — Dr. Alan Sills

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This is why the league now has ramp-up periods in training camp to re-acclimate players to the rigors of the game. It's the scientifically backed version of the idea that there's being in shape and there's being in football shape.

What the data also showed was intensity matters. Teams like the Packers under head coach Matt LaFleur have rested their starters for most of the preseason but are now

increasing the number of joint practices. Aaron Rodgers may not have liked it, but according to what the task force found, it matters.

“It turns out that you need to have some game-like intensity to prepare the body for the start of the regular season,” Dr. Sills says.

“In joint practices, the intensity levels and the effort tend to mirror a little bit more closely what we see in games. So, what the task force found is that if you don’t ever have any of those game-level intensity efforts prior to the start of the season, you have a spike in soft-tissue injuries prior to the start of the season.”

There’s also a clear line to draw between healthy teams in training camp and winning in the regular season. It’s intuitive, but it’s also backed by the data. Still, coaches weren’t sold. Teams like the Pittsburgh Steelers have grueling training camps and head coach Mike Tomlin believes in the value of building that scar tissue.

Dr. Sills tells the story of sharing the injury findings with coaches and one long-time coach pushed back.

“He stood up in the back and he said, ‘You know doc, I want to keep my players safe. We all want our players to be safe. But I also got to win. That’s how I keep my job.’ And he said, ‘Do you have any idea of how this translates to winning and losing?’”

So, they investigated and found over a five-year period, every single Super Bowl winner landed in the lower third of soft-tissue injuries in the first two weeks of training camp.

“Now, we have everyone’s attention,” Dr. Sills says. “Now, we’ve said this isn’t just a dry academic discussion on hamstring strains. It really does have an impact on winning and losing.”

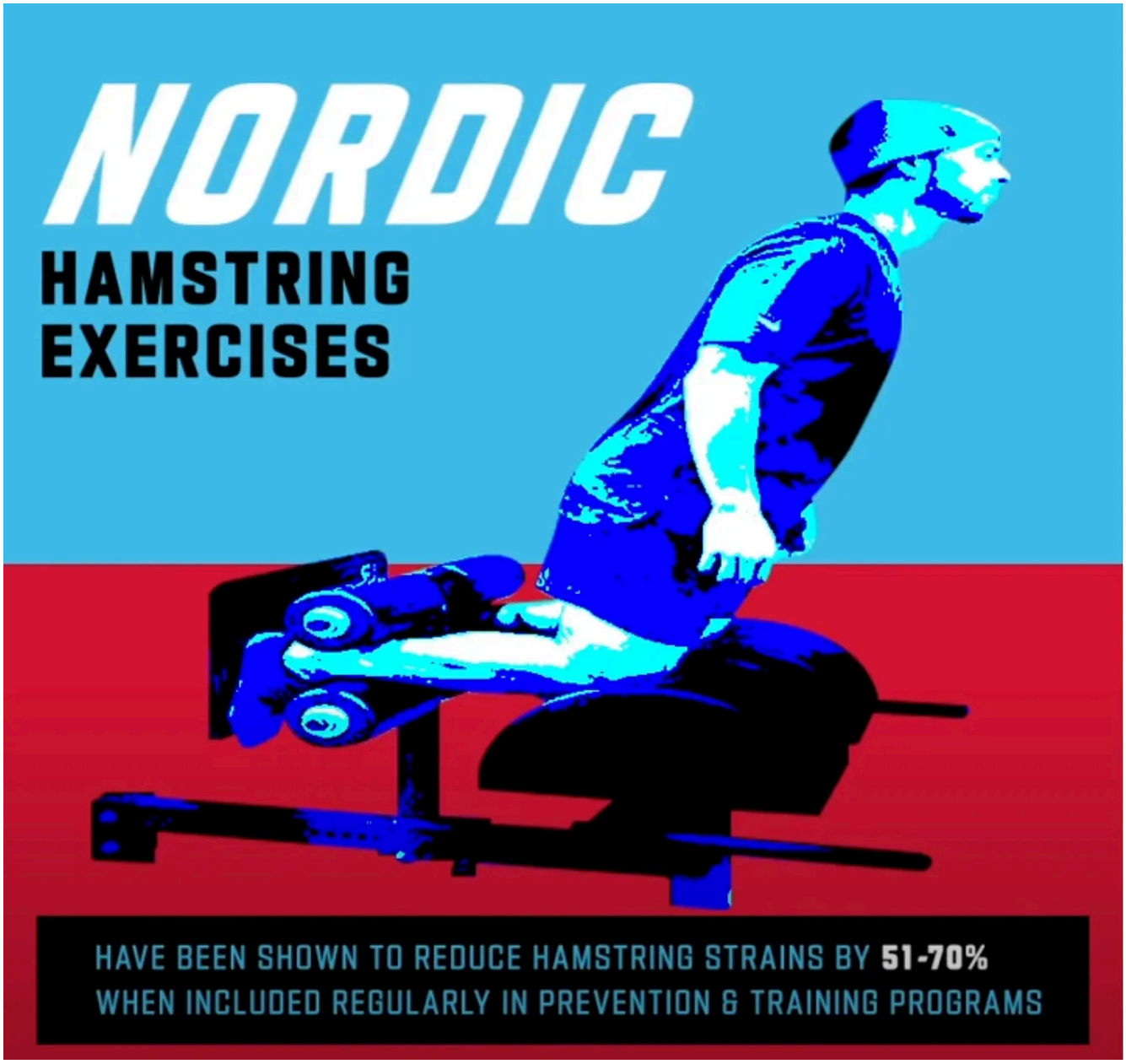
The players have to take on their role in this as well.

“Thirty, forty years ago, players came to training camp to quote ‘get in shape,’ assuming they didn’t really do much in the offseason, and now all of a sudden we’re gonna get ready,” Dr. Sills says. “That model doesn’t really exist anymore.”

Dr. Heiderscheit describes two pillars of training to prevent injuries: ensuring proper warm-up to prevent undo strain and the type of training matters.

The Packers have made alterations to their warms-up at the facility with new strength coach Aaron Hill introducing a more dynamic set of warms-ups and a differentiation by player. A one-size-fits-all model is no longer de rigeur.

Proper warm-ups along with ankle mobility are part of the NFLPA recommendations to its players in the offseason work. There's also a way to train to avoid specifically to avoid injury. According to the NFLPA, Nordic hamstring curls have been shown to significantly reduce hamstring strains.



(NFLPA infographic)

But that's just one tool for players.

"There's no one perfect exercise, but the key is to do the exercises in a way -- high intensity, low volume -- that creates the training stimulus that you're after to get that muscle to respond and remodel in a way that does build resilience," says Dr. Heiderscheit.

Rehabilitation often focuses on strength training, but for all the reasons it works after an injury -- creating better stability and resilience -- it works as a prophylactic as well.

Eccentric movements, where muscles get longer as they're being stressed, are particularly effective at increasing resilience in muscles. And it's not as if those require reinventing the weightlifting wheel. Deadlifts have been around for as long as weightlifting and they are a classic example of eccentric loading, perhaps before a phrase like "eccentric loading" even existed.

Back in May, LaFleur noted training camp would be a grind but said Stokes and Watson came to camp in the best shape of their lives. Watson made it through camp without a single missed day. It's too soon to say this approach worked, but it's fair to say it's working, at least for the moment.

Treatment and prevention

If the best way to mitigate risk against soft-tissue injuries is to prevent them, then NFL teams need tools to help them do that. Some teams use DARI motion analysis to analyze player movements. The NFL partnered with AWS to create the Digital Athlete program, a model that creates a profile for every player using their tracking data and other inputs to compute the risk of injury on a day-to-day basis.

The Wisconsin Badgers, with the help of Dr. Heiderscheit, use screening like the testing Watson and Stokes underwent on all new players to the program. Incoming freshmen and transfer players undergo testing to identify potential problems before they become injuries. He believes this to be a vital piece of the puzzle and would like to see the whole league adopt the Badgers' approach.

The Packers declined to comment on the specifics of their programs, citing competitive advantage concerns. Every team has its own proprietary strength and condition system. Dr. Sills confirmed there are NFL teams who do testing for incoming players, hoping to identify potential weak points before they become worse.

Watson's surgery came with no outward signs of trouble, according to a source close to the situation. Would a proactive screening in his rookie minicamp have better set up Green Bay's training staff to treat him? What about last year? No one can know for certain.

Would it make sense for a team to invest in screenings for *all* its players when they come back to the team facility to nip problems in the bud before they grow worse? Dr. Sills insists the data hasn't yet compelled the NFL to recommend teams screen every new player, much less an entire team.

The training staff in Green Bay was, after all, being proactive after some kind of evaluation revealed the need for surgery. The Packers were trying to amplify longevity for Watson.

Sometimes, the application of science has a certain amount of art to it.

If this feels a bit like "PreCrime" from *Minority Report*, it should. The difference is instead of arresting people before they commit a crime because a computer says they were going to commit it, teams have tools to reduce the workload of a player who has a better chance of being injured. They also have the ability to screen players coming off injury or newly arrived in their programs to ensure their bodies are moving efficiently. Sports science and technology may be nascent in this space, but they've evolved into a vital resource.

"Yes, there's going to be some foundational principles about how you bring people back, but how do we monitor and measure parameters that actually matter on the day to day?" Dr. Sills asks rhetorically.

"It's not just, 'Hey, it's football, people get hurt.' You don't make progress by taking that mindset. You make progress by saying, 'We can do better.'"

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