Already-available therapy could protect football players from CTE: ‘Incredibly groundbreaking’

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Forget reducing wrinkles and fighting hair loss.

A new study suggests a unique form of a treatment already popular in the US for skin health, pain relief and faster healing may also offer a surprising benefit: Protecting football players’ brains from chronic inflammation caused by repeated blows to the head.

“I would call it incredibly groundbreaking,” Dr. Shae Datta, co-director of the NYU Langone Concussion Center, who was not involved in the research, told The Post.

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Chronic traumatic encephalopathy (CTE) is often observed in football players due to tackles and falls. Getty Images

While it hasn't been put to the test yet, experts hope red light therapy may one day offer a valuable tool in the fight against the deadly brain disease known as Chronic Traumatic Encephalopathy, or CTE.

The degenerative brain disease is caused by repeated head injuries and is most common in contact sports athletes like football players and boxers, as well as soldiers in war zones.

It can lead to a wide range of symptoms, including confusion, memory loss, emotional instability, aggression and, eventually, trouble walking, speaking, swallowing and

even breathing. There's no cure, and doctors don't know how to slow its progression.

Right now, the only real way to prevent CTE is to avoid repeated brain injuries by wearing helmets and reducing hits to the head.

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But with more than 100 former NFL players diagnosed with CTE after death and countless others likely affected, experts say additional tools are needed.

"We don't have enough information to say that using this could prevent CTE," Datta said. "But we can say it's a potential use for it if it's bringing down neuroinflammation, because that's what's causing the long term effects."

A bright idea for brain safety

In the past, studies have shown that red light therapy, also called photobiomodulation, can lower inflammation in the body by boosting energy production inside cells and increasing blood flow, helping tissue repair and reduce swelling.

Curious whether it might also reduce brain inflammation from repetitive head injuries — believed to play a key role in CTE progression over time — researchers at the University of

Utah Health put it to the test.

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Targeted red light therapy may help reduce inflammation in the brain, thought to be a key driver in the progression of CTE. Sage Journals

The team recruited 26 collegiate football players and assigned them to either a Vielight Neuro Gamma helmet, which emits near-infrared light to the skull and nasal cavity, or a placebo treatment using an identical device that did not emit light.

The athletes underwent therapy three times a week for 20

minutes per session throughout their 16-week season.

When researchers conducted MRI scans at the end of the study, they found brain inflammation in the placebo group had significantly increased compared to images taken at the start of the season.

In contrast, players who used the light-emitting helmet did not experience increased inflammation and appeared protected across nearly all regions of the brain.

"My first reaction was, 'There's no way this can be real,'" Dr. Hannah Lindsey, a research associate in neurology at University of Utah Health and first author on the study, said in a statement. "That's how striking it was."

Datta was impressed, but not surprised.

"I've been studying and following this photobiomodulation and red light therapy," she said. "But I think for people who haven't been, this is, like, mind blowing."

Dr. Kristen Dams-O'connor, director of the Brain Injury Research Center of Mount Sinai, has also been following this work — and is "enthusiastic" about its potential implications.

> *"We're not giving you medication. Most people are not having side effects with it. But we're seeing tangible changes all the same."*

Dr. Shae Datta

“Considering the mechanism of action — inflammation, at least broadly speaking — it does make sense in theory,” she told The Post. “If this can mitigate the acute inflammatory cascade that has been documented in human and animal models of repetitive head impacts, perhaps this presents an opportunity to make sports safer.”

The researchers acknowledged that this specialized form of red light therapy is still emerging and more research is needed, but after several preliminary studies with head-injury patients, they are increasingly confident it holds real promise.

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Average changes in inflammation from the start to the end of the football season in players on the placebo treatment. Red corresponds to the greatest increase in inflammation.
Hannah Lindsey, PhD

“When we first started this project, I was extremely skeptical,” said Dr. Elisabeth Wilde, professor of neurology at University of Utah Health and senior author on the study. “But we’ve seen consistent results across multiple of our studies, so it’s starting to be quite compelling.”

An added bonus: It’s completely non-invasive.

“We’re not giving you medication. Most people are not having side effects with it,” Datta said. “But we’re seeing tangible changes all the same.”

But do not go rushing to the store to buy a red light mask for your favorite football player.

“It has to be certain wavelengths of red light that can actually adequately penetrate the skin and the subcutaneous tissue,” Datta explained, noting that this is not what you would find in red light devices on store shelves.

Still, she said, if more research backs up the latest findings, the specialized red light tech could be something we see college and professional teams invest in down the line.

“I would also want to make sure that this doesn’t have long-term negative side effects, because this definitely did benefit the athletes that it was used in, but we’ve yet to see if there’s going to be some kind of fallout,” Datta said.

“If there is no risk for harm (which is a high bar), I can see this being widely adopted,” Dams-O’Connor added.

The research team is already moving forward with their next study testing the effects of red light on the brain.

They are launching a Department of Defense funded trial with 300 people suffering from persistent concussion or traumatic brain injury symptoms, including first responders, veterans and active-duty service members. Recruitment is expected to begin in February or March 2026.

Dr. Carrie Esopenko, associate professor of neurology at University of Utah Health and second author on the study, says the findings could one day help athletes across all sports.

“We’ve been trying to figure out how to make sports safer, so that our kids, friends, and family can participate in sports safely for the long term while they’re involved in activities that give them happiness and joy,” she said. “And this really feels like part of the hope for protecting the brain that we’ve been searching for.”