

Former BYU, NFL greats have their brains examined, results positive

Tom Holmoe and Jim Herrmann participated in a clinical trial testing the effect of infrared light treatment on brain health

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Former BYU and San Francisco 49ers football player Tom Holmoe, left, prepares to speak about red light therapy treatment for CTE with, from left, Scot Faulkner, board member for the Photobiomodulation Foundation; Lew Lim, Vielight founder and CEO; and former BYU football player Larry Carr during the “Healthy America 2026 — Going for the Summit” conference at the Westgate Park City Resort & Spa in Park City on Tuesday, May 5, 2026. Tess Crowley, Deseret News [Purchase Image](#)

To the growing list of former football players who have participated in a clinical trial testing the viability of photobiomodulation, or infrared light treatment, to enhance brain health, add the names of Tom Holmoe, the recently retired BYU athletic director who played at BYU and won three Super Bowl rings playing for the San Francisco 49ers, and Jim Herrmann, who anchored BYU’s defensive line when the school won the national championship in 1984 and then spent time in the NFL.

Both men wore infrared headsets for a 12-week period from November through February, after first being run through a series of tests that measured various cognitive and physical functions at the University of Utah Department of Neurology.

At the conclusion of the 12 weeks, Holmoe and Herrmann were re-tested, with University of Utah neurologists Dr. Elisabeth Wilde, Dr. Carrie Esopenko and Dr. Hannah Lindsey comparing the before-and-after measurements.

Former BYU football player Larry Carr, right, speaks about red light therapy treatment for CTE with, from left, former BYU and San Francisco 49ers football player Tom Holmoe; Scot Faulkner, board member for the Photobiomodulation Foundation; and Lew Lim, Vielight founder and CEO, during the “Healthy America 2026 — Going for the Summit” conference at the Westgate Park City Resort & Spa in Park City on Tuesday, May 5, 2026. | Tess Crowley, Deseret News [Purchase Image](#)

In each case, the data showed improvement in brain health in a majority of the areas studied, with no discernible side effects.

Holmoe’s and Herrmann’s results mirrored those of BYU football players who were tested during the 2021 football season. In that clinical trial, 13 players wore working PBM headsets and 13 wore sham headsets. At the end of the season, those using the working headsets showed cognitive and physical improvement, while the sham group showed a decline. The most surprising findings were the elimination of inflammatory signs in the brains of the players using the working units.

As AD, Holmoe was instrumental in facilitating that 2021 BYU trial. Intrigued by its positive results and other subsequent studies involving BYU players, after he retired a year ago he volunteered to be personally tested.

“If the results I received can be replicated, that’s a very, very positive thing for football and a lot of other people who suffer from brain injuries,” said Holmoe. “I don’t have cognitive issues, but I am a 66-year-old former football player who had multiple concussions from the time I started playing football at age 12. I’ve been fortunate, I don’t have headaches, anxiety, depression, but I have to have brain injury to some degree. If there is something that can help brain health going forward, for me and for others, I’m all for it. I want to help and participate in the research. This looks very promising. This could turn into something really big.”

Former BYU and San Francisco 49ers football player Tom Holmoe, left, greets former BYU football player Larry Carr, right, before they speak about red light therapy treatment for CTE during the “Healthy America 2026 — Going for the Summit” conference at the Westgate Park City Resort & Spa in Park City on Tuesday, May 5, 2026. | Tess Crowley, Deseret News [Purchase Image](#)

Holmoe, who is leaving with his wife Lori to serve as mission leaders for The Church of Jesus Christ of Latter-day Saints in the Bay Area next month, said he noticed better recall after using the headset. “If I lost a thought, I could find it,” he said. “Is it part of the headset? Or is it because I don’t have the stress and strain of running an athletic department and I’m looking forward to serving a mission? I don’t know the exact reasons, but I felt more relaxed.”

Herrmann entered the study for the same reasons as Holmoe: to be proactive about his mental health.

“Not that I’ve ever been depressed, but I feel better, more calm,” after using the headset, he said. “I improved on all my memory scores, every one of them. I didn’t even feel that great the day I took the second test; I went in hoping I’d pass. But I had improved from baseline in every single category, which was really surprising and awesome. As a lawyer, anytime I’m talking about anyone’s health, I always want to be as transparent as I can and not give anyone false hope, but from what I see, anecdotally and objectively, from all these tests, mine included, it is mind-blowing. I plan on incorporating this into my life going forward.”

Lew Lim, Vielight founder and CEO, right, speaks with former BYU and San Francisco 49ers football player Tom Holmoe, left, before they speak in a panel about red light therapy treatment for CTE during the “Healthy America 2026 — Going for the Summit” conference at the Westgate Park City Resort & Spa in Park City on Tuesday, May 5, 2026. | Tess Crowley, Deseret News [Purchase Image](#)

As a member of the leadership committee of the local NFL Alumni Chapter, Herrmann said he plans to present the data from his test results in an upcoming membership meeting. “Anybody who’s played even one snap in the NFL worries about this,” he said. “The big news here is there’s hope for anybody who’s played contact sports.”

Both Holmoe and Herrmann heard about light therapy from Dr. Larry Carr, the former BYU and Canadian League linebacker who, after his playing days, suffered years of depression, paranoia and violent mood swings — symptoms indicative of the brain disease chronic traumatic encephalopathy, or CTE — until he started PBM treatments in 2018. He’s been wearing the headset ever since. He credits the therapy with saving his life.

Ever since his remarkable turnaround, Carr has been striving “to save football ... and lives.” He single-handedly recruited the University of Utah Neurology Department to get involved, in addition to persuading his alma mater into doing the pivotal 2021 study.

In January, the prestigious peer-reviewed Journal of Neurotrauma published a favorable report about that BYU study, titled “Transcranial Photobiomodulation Promotes Neurological Resilience in Current Collegiate American Football Players Exposed to Repetitive Head Acceleration Events.”

Which is a long, scientific way of saying the data shows that PBM works.

The journal article resulted in a story that week in the New York Post, “Already-available therapy could protect football players from CTE,” with a quote from an NYU neurologist who proclaimed the news “incredibly

groundbreaking.”

From left, former BYU and San Francisco 49ers football player Tom Holmoe; Scot Faulkner, board member for the Photobiomodulation Foundation; Lew Lim, Vielight founder and CEO; and former BYU football player Larry Carr speak about red light therapy treatment for CTE during the “Healthy America 2026 — Going for the Summit” conference at the Westgate Park City Resort & Spa in Park City on Tuesday, May 5, 2026. | Tess Crowley, Deseret News [Purchase Image](#)

Following that publicity, Carr flew to New York to appear as a guest on the Neil Haley podcast and to be interviewed by Peter Coy of Substack, who wrote, “I’m stunned, infrared light seems to work.”

In March, Carr and the University of Utah’s Dr. Wilde were invited to Washington, D.C., to discuss their research with members of the federal health administration, who are pushing for an expansion of PBM use in all VA hospitals. Also, the Department of Defense has agreed to fund a forthcoming clinical trial at the University of Utah to study the effects of PBM on veterans, first responders and active military personnel.

Steve Young, the Super Bowl-winning BYU grad and close friend and former teammate of Holmoe and Herrmann, recently was tested by the University of Utah researchers in California and started wearing a headset. And just this week, Luke Kuechly, an NFL Hall of Fame linebacker who retired at 28 due to numerous concussions, contacted Carr about starting the PBM therapy.

Eight years into his self-appointed crusade, Carr is seeing signs of real momentum.

“Every study to date consistently shows improvements across the board, with the best results coming from people who are suffering the most,” he said. “This therapy decreases inflammation and increases cognitive and motor skills. It heals the brain.

“But it’s such a paradigm shift in the way football looks at brain health,” Carr continued. “All the emphasis has

been on prevention, on helmets, on pads on helmets, all these preventative techniques. But prevention is never going to work in a collision-focused sport. You just can't stop the brain from crashing into the skull with every change in acceleration. You have to treat the problem, and we're the first ones to show you can actually treat it by wearing a headset 20 minutes a day, with no side effects. People have a hard time putting their arms around that. I like to compare it to doctors washing their hands with soap in the 1800s to stop infection. People resisted that for a long time. It took 10-15 years for it to be adopted across the board. It was something so simple, nobody wanted to believe it. People say this is too good to be true. But the data says this is the answer that football has been looking for over the past 20 years."