

# Brain trauma test to be conducted by San Diego biotech subsidiary



James Joyce, chairman and CEO of Aethlon Medical (Kevin Swan /Aethlon Medical)



By **Bradley J. Fikes**

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A subsidiary of San Diego's Aethlon Medical will soon start a clinical trial of a test for a potentially deadly brain trauma.

The trial by Exosome Sciences of Houston is expected to begin in the second quarter, said James Joyce, Aethlon's president and CEO.

Up to 200 former professional football players will be recruited for the trial of a test for chronic traumatic encephalopathy, a degenerative brain disease caused by repeated brain trauma.

CTE is known to affect boxers and has also been found in football players and military veterans. All these groups are at risk for repeated head injuries. At present, the disease can only be diagnosed after death by examination of the brain.

Among those affected were Junior Seau, the late Chargers linebacker who killed himself in 2012. Seau's brain was found to contain clusters of an abnormal protein called tau.

The test looks for signs of tau in blood plasma, contained in small particles called exosomes released from cells. Tau is also associated with Alzheimer's disease and believed to be implicated in its development.

A 2016 study led by Boston University and Exosome researchers found that tau-containing exosome particles, which Exosome Sciences called TauSomes, could provide a biomarker to detect the disease in the living.

That study was funded by the National Institutes of Health; the first NIH-funded study on CTE, Joyce said in a Tuesday interview.

"It was in that study that we had a chance to test our biomarker," Joyce said. "And what we showed in the study, published in the Journal of Alzheimer's Disease, is that the exosomal tau, which we call TauSomes, was significantly higher in blood plasma (of former NFL players at higher risk for CTE) than the control group."

The control group consisted of former athletes who participated in sports that didn't produce repetitive head trauma, Joyce said.

Moreover, higher levels of TauSomes were associated with a greater level of cognitive decline, he said.

"That was a pretty good indicator that we might have a candidate biomarker to diagnose CTE," Joyce said. "While it was preliminary data, it was pretty compelling preliminary data."

The use of exosomes for this test is part of a larger movement to more carefully examine these vesicles as carriers of clinically useful information, Joyce said.

"A little more than five years ago, the medical consensus was that exosomes were just cellular debris, with no biological function," he said. "We started doing oncology work in exosomes in 2006."

At that time, there was high skepticism that exosomes could be of use in assessing cancer, he said. Today, there's intensive research into that potential application.

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