

# Former Bears QB on Injury Recovery With NAD, Omega-3

Analysis by [Dr. Joseph Mercola](#) ✓ Fact Checked

## STORY AT-A-GLANCE

- › Jay Cutler, a former quarterback who played in the NFL for 12 seasons with the Bears, Broncos and Dolphins, is now facing the repercussions of repeated concussions; he is sharing the natural options he's turning to for hope of recovery
- › Knowing his risk of brain disease is high, Cutler is being proactive in doing all he can to protect his brain health, including limiting sugar in his diet and consuming "heavy" amounts of omega-3 fats
- › Cutler is also using intravenous nicotinamide adenine dinucleotide (NAD) to help preserve his brain health; NAD is a vital signaling molecule and depletion is common in cases of neurodegeneration and concussions
- › Many people do not seek medical attention after falls or other blows to the head, but it's important to be on the lookout for concussion symptoms, which can last for days to months

Every year, 1.6 million to 3.8 million cases of mild traumatic brain injury (MTBI) related to sports are estimated to occur in the U.S.<sup>1</sup> Concussions are one example of an MTBI. They occur when a bump, blow or jolt to the head or body causes the head and brain to move back and forth rapidly. The jarring movement can stretch and damage brain cells while also leading to chemical changes in the brain.<sup>2</sup>

The National Football League is well-acquainted with concussions, as it's estimated that 0.41 of them occur during every NFL game.<sup>3</sup> For those not involved in competitive

sports, concussions may occur due to falls,<sup>4</sup> car accidents or other injuries.

As the dangers of concussions, especially repeated ones, have become well-known, research into their causes and effects has increased, with one study showing that most concussions and repetitive head impact exposures among college football players occur not during games but during preseason training and football practices.<sup>5</sup>

This has prompted calls for prevention strategies and education, as concussions have serious implications for long-term neurological health. Jay Cutler, a former quarterback who played in the NFL for 12 seasons with the Bears, Broncos and Dolphins, is now facing the repercussions of repeated concussions; he's sharing the natural options he's turning to for hope of recovery.<sup>6</sup>

## Repeated Concussions Can Lead to Brain Disease

Chronic traumatic encephalopathy (CTE) is a progressive brain disease that was once believed to affect primarily boxers but is now known to occur in all types of contact sports and the military<sup>7</sup> – any activity that leads to repeated concussions puts you at risk. According to the Concussion Legacy Foundation:<sup>8</sup>

*"In CTE, a protein called tau misfolds and malfunctions, causes other proteins to misfold, and sets off a chain reaction where this malfunctioning tau slowly spreads throughout the brain, killing brain cells. CTE has been seen in people as young as 17, but symptoms do not generally begin appearing until years after the onset of head impacts."*

Early symptoms, which may begin as early as the patient's 20s, include mood and behavior changes, progressing to:<sup>9</sup>

Problems with impulse control	Aggression	Mood swings
Depression	Paranoia	Anxiety

Problems with sleep

Short-term memory loss

Confusion

Impaired judgment

**Dementia**

CTE doesn't typically occur after one or two concussions. Most individuals affected have had hundreds or thousands of blows to the head, including not only concussions but also many lesser impacts that don't cause "full-blown" concussions, but which often are the biggest factor.<sup>10</sup> Cutler fits the description of those most at risk of CTE and has stated, "CTE, it's coming at some point."<sup>11</sup>

*"I've damaged enough things and brain parts and heart and everything in my life, if I make it to 80, or anything after that, I'll be happy," he said ... "I would say definitely my memory isn't the same as it was five years ago.*

*The amount of concussions I've had are probably in the double digits. It's gonna catch up to me at some point. I'm just trying to delay it as much as possible."*

## **Omega-3s and Low Sugar for Brain Health**

Knowing his risk of brain disease is high, Cutler is being proactive in doing all he can to protect his brain health. "Trying to cut sugar. Heavy amounts of fish oil have been tied to health in the brain," Cutler said.<sup>12</sup> Indeed, daily **sugar consumption** impairs spatial memory and inhibits neurogenesis in the hippocampus, a brain area involved in learning and memory processes.<sup>13</sup>

Animal studies have also shown that a high-sugar diet tends to alter inhibitory neurons in the prefrontal cortex,<sup>14</sup> where decision-making and impulse control are centered. Aside from impaired impulse control and the inability to delay gratification, this alteration may also increase the risk of mental health problems.<sup>15</sup>

So, cutting down on sugar is a wise move on Cutler's part. Even if you're otherwise healthy, without Type 2 diabetes or glucose tolerance, consuming too much sugar, and the related higher blood sugar levels it causes, has a negative effect on cognition, possibly by causing structural changes in areas of the brain associated with learning.<sup>16</sup>

Adding in **omega-3 fats** is also wise, as omega-3 fats are vital to your brain. A study in the journal *Neurology* found "older women with the highest levels of omega-3 fats ... had better preservation of their brain as they aged than those with the lowest levels, which might mean they would maintain better brain function for an extra year or two."<sup>17</sup>

In addition, older adults with memory complaints who consumed docosahexaenoic acid (DHA), alone or in combination with eicosatetraenoic acid (EPA), had improved memory.<sup>18</sup> EPA and DHA are two types of omega-3 fatty acids. Low DHA levels have been linked to memory loss and Alzheimer's disease, and some studies suggest degenerative brain diseases may potentially be reversible with sufficient DHA.<sup>19,20</sup>

In terms of brain trauma, specifically, DHA may help the brain resist **oxidative stress** while preserving membrane homeostasis and function after injury. University of California at Los Angeles researchers suggested that dietary DHA may "counteract broad and fundamental aspects of **TBI [traumatic brain injury]** pathology that may translate into preserved cognitive capacity."<sup>21</sup> In addition, omega-3 fats may be beneficial for concussions by:<sup>22</sup>

- Reducing biological markers of brain injury and cellular apoptosis
- Protecting against reduced plasticity of neurons and impaired learning when used prior to a concussion
- Maintaining genomic stability and cellular homeostasis

While Cutler mentioned fish oil, the ideal sources for **EPA and DHA** include cold-water fatty fish, like wild-caught Alaskan salmon, sardines, herring and anchovies. If you do not eat these fish on a regular basis, consider taking a krill oil supplement. You can learn more about why krill oil is preferable to fish oil in the infographic below.

## **Nicotinamide Adenine Dinucleotide (NAD) for Brain Injury**

Cutler is also using nicotinamide adenine dinucleotide (NAD) to help preserve his brain health – another solid option. NAD is a vital signaling molecule<sup>23</sup> that's also believed to play an important role in longevity. This is partly due to its role as an essential substrate

for sirtuins,<sup>24</sup> which are enzymes related to healthy aging, as well as its role in DNA repair.

NAD modulates energy production and many enzymes and in so doing controls hundreds of processes in your body including the survival of cells and energy metabolism. NAD is influenced on a daily basis by what you eat, exercise levels and more, and also declines with age, leading to changes in metabolism and an increased risk of disease.<sup>25</sup>

NAD depletion is common in cases of neurodegeneration and concussions.<sup>26</sup> In a mouse study, intracortical administration of nicotinamide riboside (NR), a **precursor to NAD**, helped protect against central brain injury.<sup>27</sup> Cutler said:<sup>28</sup>

*"I'm doing nicotinamide adenine dinucleotide (NAD) therapy. I'm doing it through IVs now. NAD is in all the cells in your body, the mitochondria, the energy that pushes each cell to function.*

*As you get older, you lose NAD. So I'm doing NAD therapy, which, at a core level, helps everything in your body. I've noticed that that's definitely helped me. Anything I can do these days, I'm trying to get involved in."*

A study is underway in college football players to determine if NR supplementation (750 milligrams a day for 12 weeks) affects the levels of NAD in the brain.<sup>29</sup> If the results are favorable, it could pave the way for NR to be used as a preventive tool for managing sports-related concussion and TBI.<sup>30</sup>

## Concussions Shouldn't Be Ignored

Even if you're not a professional athlete, the repercussions of a concussion can be significant. Many people do not seek medical attention after falls or other blows to the head, but it's important to be on the lookout for concussion symptoms, which can last for days to months.<sup>31</sup>

Unable to recall events prior to or after a      Appears dazed or stunned

hit or fall	
Forgets an instruction, is confused about an assignment or position, or is unsure of the game, score, or opponent	Moves clumsily
Answers questions slowly	Loses consciousness (even briefly)
Shows mood, behavior, or personality changes	Headache or “pressure” in head
Nausea or vomiting	Balance problems or dizziness, or double or blurry vision
Bothered by light or noise	Feeling sluggish, hazy, foggy, or groggy
Confusion, or concentration or memory problem	Feeling off or “not right”

Since additional head injuries after a concussion can lead to significant injury, avoid activities that may further injure your brain. Children and teens, for instance, should not return to sports until the concussion is fully healed. Be sure to get adequate sleep in the aftermath and avoid strenuous physical or mental activity. You may need to take more frequent breaks during work or schooling.<sup>32</sup>

## More Natural Strategies for Concussions

If you’ve had a concussion or know someone who does, “The Concussion Repair Manual: A Practical Guide to Recovering From Traumatic Brain Injuries” by Dr. Dan Engle, board-certified in psychiatry and neurology, may help. Among his top strategies for repairing neurological function in case of [injury like a concussion](#) are:

Flotation therapy, which induces sensory      Omega-3 fats

deprivation; without environmental stimuli, your brain has more energy to put toward recuperation

Vitamin D	Melatonin, particularly if you're having issues with sleep
Photobiomodulation	Pulsed electromagnetic field therapy
Transcranial direct current stimulation	Neurofeedback

**Hyperbaric oxygen treatment** (HBOT), which involves exposure to high-pressure oxygen at different concentrations inside a pressure chamber, has also shown promise for improving brain injury<sup>33</sup> and other neurological conditions.<sup>34</sup> Traumatic brain injury is one of only 15 conditions for which U.S. insurance companies will pay for HBOT.<sup>35</sup>

If your concussion symptoms are severe or persistent, you should seek medical assistance, and keep in mind that your brain may still be recovering for months or even years following a concussion.<sup>36</sup> Because of this, strategies to **optimize your brain health** in both the short and long term will be beneficial.

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