

ANNUAL REPORT

20

A YEAR OF
GROWTH & RESILIENCE

24

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Expanding hope, support, & science in 2024

As we reflect on the past year, we are proud to share the remarkable progress the Concussion Legacy Foundation has made in advancing the awareness, treatment, and research surrounding concussion management and the prevention of CTE. 2024 has been a year of significant milestones that have strengthened our mission and expanded our reach to better serve all individuals and communities affected by brain injury on a global scale.

Thanks to the ongoing support from our donors and grantors, the CLF HelpLine and Peer Support programs had a record year, providing crucial support to 1,492 individuals navigating the challenges of persistent post-concussion symptoms (PPCS) and suspected CTE, connecting 93 individuals with one-on-one support, and serving over 1,300 attendees in virtual support groups (p. 12). These programs continue to be a lifeline for individuals and families impacted by PPCS and suspected CTE.

We continued to educate and advocate on a global scale and remain the go-to resource for decisionmakers and media outlets. New regulations were adopted around the world to delay heading in soccer and tackling in rugby and Australian rules football, highlighting the reach of our Stop Hitting Kids in the Head program (p. 15). CLF identified a new sign of concussion that could identify up to 33% of undiagnosed concussions and refined language to better describe the impacts that lead to CTE (p. 09)

While 2024 has been a year of incredible progress, our work is far from done. We remain steadfast in our mission to bring greater awareness, research, and support to those affected by brain injury. The challenges ahead are complex, but with the continued support of our partners, advocates, and stakeholders, we are confident in our ability to drive meaningful change.

Thank you for your ongoing dedication and commitment to this important cause. Together, we are making a difference.

Sincerely,

Chris Nowinski
Co-Founder & CEO

Robert Cantu
Co-Founder & Medical Director

Scott Blackburn
President, Board of Directors



OUR MISSION

The Concussion Legacy Foundation's mission is to support athletes, veterans, and all affected by concussions and CTE; achieve smarter sports and safer athletes through education and innovation; and to End CTE through prevention and research.

OUR VISION

A world with CTE and concussion safety without compromise.





ADVISORY ROLES



The Concussion Legacy Foundation co-founders Robert Cantu, MD and Chris Nowinski, PhD are proud to serve as advisors to more professional and collegiate sports organizations than any concussion-focused non-profit in the world.

By working with professional and collegiate sports to educate stakeholders and create policy, CLF sets the example for high school and youth sports to follow.



Our Global Brain Bank team now makes up scientists from seven of the top research organizations in the world all fighting together for a world without CTE.

Innovative research, connecting global scientists.

UNITE Brain Bank Research



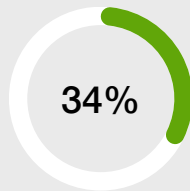
Original Investigation | Neurology

Duration of Ice Hockey Play and Chronic Traumatic Encephalopathy

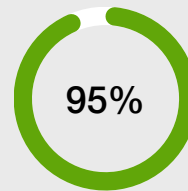
Bobak Abdolmohammadi, BA; Fatima Tuz-Zahra, MS; Madeline Uretsky, MS; Raymond Nicks, MS; Sydney Mosaheb, MS; Jacob Labonte, BS; Eukyung Yhang, MS; Shruti Durape, MBBS, MPH; Brett Martin, MS; Joseph Palmisano, MA, MPH; Christopher Nowinski, PhD; Jonathan D. Cherry, PhD; Victor E. Alvarez, MD; Bertrand R. Huber, MD, PhD; Kristen Dams-O'Connor, PhD; John Crary, MD, PhD; Brigid Dwyer, MD; Daniel H. Daneshvar, MD, PhD; Lee E. Goldstein, MD, PhD; Rhoda Au, PhD; Douglas I. Katz, MD; Neil W. Kowall, MD; Robert C. Cantu, MD; Robert A. Stern, PhD; Michael L. Alosco, PhD; Thor D. Stein, MD, PhD; Yorghos Tripodis, PhD; Ann C. McKee, MD; Jesse Mez, MD, MS

CLF co-founded the UNITE Brain Bank at the Boston University CTE Center in 2008 and continues to lead outreach and recruiting. In 2024, we coauthored the largest study ever of CTE in ice hockey with 77 subjects.

Highlights:

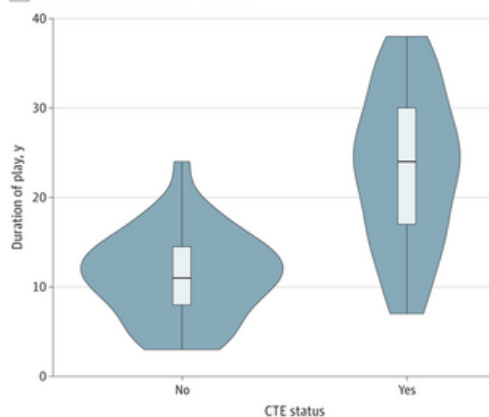


Odds of developing CTE among male ice hockey players increased **34% per season played**

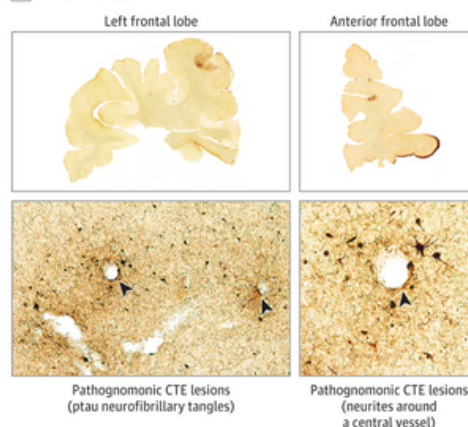


18 of 19 NHL players studied had CTE

A CTE status by duration of hockey play



B Images of stage II CTE





UNITE Brain Bank Research

The study helped inspire the NHL Players Association to launch their first CTE Advisory Committee. NHLPA Executive Director Marty Walsh received the Impact Award at the 2024 Gala for his leadership.

Pictured behind him are the first 12 publicly named former NHL players to be diagnosed with CTE at the UNITE Brain Bank.

FORMER NHL PLAYERS DIAGNOSED WITH *chronic traumatic encephalopathy*




Subconcussive is now **Nonconcussive**

Editorial

BJSM

'Subconcussive' is a dangerous misnomer: hits of greater magnitude than concussive impacts may not cause symptoms

Christopher J Nowinski,^{1,2} Hye Chang Rhim ,³ Ann C McKee,^{1,4,5}
Ross D Zafonte,^{3,6} David W Dodick,⁷ Robert C Cantu,^{1,2,8}
Daniel H Daneshvar^{3,6}

Dr. Nowinski led an editorial published in the prestigious British Journal of Sports Medicine aimed at refining the terminology used to describe head impacts and brain injuries.

The authors recognized that the term subconcussive is misleading as it implies hits that are 'less than' concussions. However, about 10% of head impacts that don't cause concussion cause greater head acceleration than concussive hits, and many of those are causing subclinical traumatic brain injury.

The authors hope this change helps scientists and the public understand how hits that do not cause concussive symptoms are still damaging the brain and contributing to CTE.

Table 1 Current and proposed impact and injury terminology

Describing impacts to the head		
Current	Proposed	Description
Concussive	Concussive	An impact that is associated with a diagnosed concussion
Subconcussive	Non-concussive	An impact that may be of greater or less force than a concussive impact but is not associated with a diagnosed concussion
Describing injuries to the brain		
Current	Proposed	Description
Concussion	Concussion	TBI with signs and symptoms related to transient alterations in brain function due to a biomechanical force
Subconcussive	Subclinical TBI	TBI, characterised by changes in neurological function, biomarkers or imaging, that is not associated with concussion signs or symptoms
Subconcussive	No injury	No evidence of TBI based on changes in neurological function, biomarkers or imaging

TBI, traumatic brain injury.

CLF Identifies New Concussion Sign

In October, Dr. Chris Nowinski and advisory board member Dr. Dan Daneshvar led the discovery of a new concussion sign, which they named Spontaneous Headshake After a Kinematic Event (SHAAKE).

In the survey of recently retired athletes who are part of the CLF Research Registry, they reported believing they had a concussion 72% of the time they exhibited this sign.

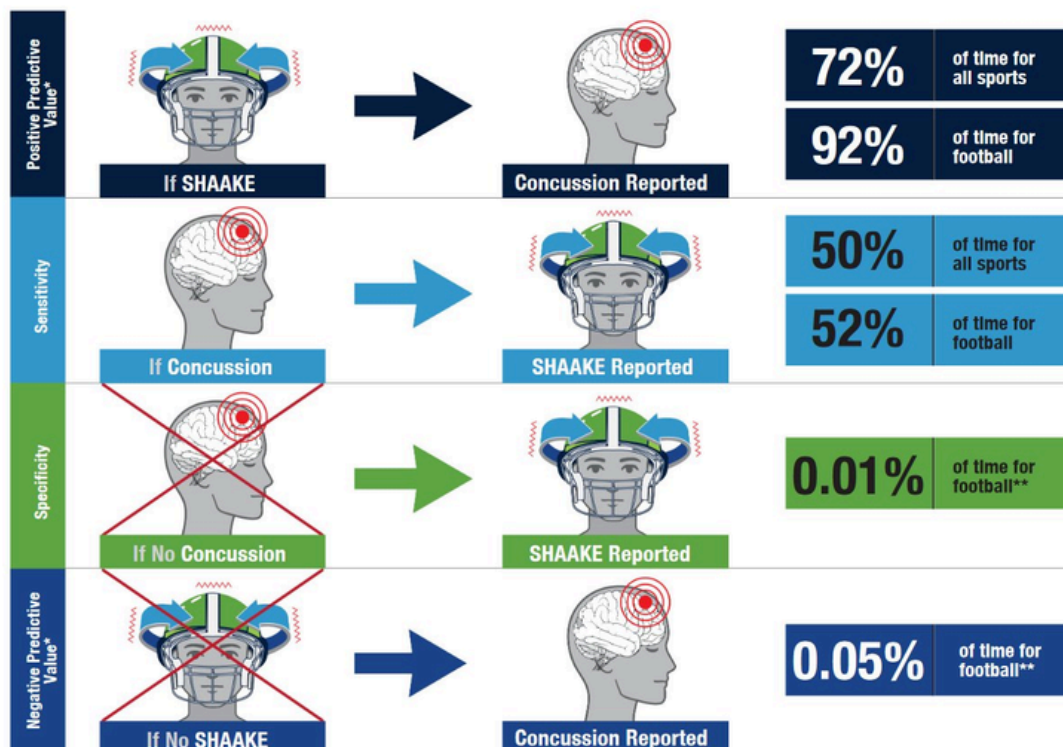
A movement frequently utilized in television, movies and cartoons to suggest a concussion has occurred, is frequently displayed by athletes after head impacts, but is not currently on anyone's list of possible concussion signs that should lead to a concussion assessment.



Article

Spontaneous Headshake after a Kinematic Event (SHAAKE): Evaluating the Utility of a Potential New Sign in the Diagnosis of Concussion

Christopher J. Nowinski ^{1,2}, Samantha C. Bureau ¹, Hye Chang Rhim ³, Ross D. Zafonte ⁴, Robert C. Cantu ^{1,2} and Daniel H. Daneshvar ^{3,*}



*Negative Predictive Value and Positive Predictive Value take into account cohort concussion prevalence, **Specificity and Negative Predictive Value are estimated based on sensor data



Global Brain Bank

The mission of the CLF Global Brain Bank is to accelerate research by collaborating with leading scientists at brain banks around the globe to understand, prevent, treat, and eventually cure CTE and other consequences of sports-related brain trauma.

CLF continues to expand its reach globally by inviting more scientists to participate in this important work.

2024 Highlights:



UCSF joined the Global Brain Bank as the 7th institution in the network.



Our collaborators at the University of Auckland diagnosed the first case of CTE in a New Zealand rugby union player.



Australian Sports Brain Bank diagnosed the two cases of CTE in women with a history of DV/IPV,



Researchers from the UNITE Brain Bank published the largest study of deceased male ice hockey players.



Researchers from the UNITE Brain Bank published a paper exploring the relationship between contact sports play and Parkinsonism in CTE.



Researchers from the UNITE Brain Bank published a paper identifying a distinct subtype of CTE, cortical-sparing CTE (CSCTE).



Expanding resources, Growing community.



Our education, advocacy, and patient and caregiver services programs had a year of growth and innovation to ensure we can best reach those who need us most.

PATIENT & CAREGIVER SERVICES

CLF Patient & Caregiver Services provides personalized support for anyone struggling with the outcomes of brain injury through the CLF HelpLine and Peer Support programs. Since 2019, we've helped thousands of patients and families find doctors, educational resources, and peer-support opportunities to help them maintain hope throughout their recovery.



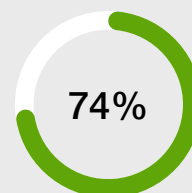
CLF HelpLine Highlights

- Responded to 1,492 cases: highest annual case volume
- Surpassed 7,500 medical and mental health clinics identified and vetted for recommendation to CLF HelpLine clients
- 1.5 hours: average time to case coordinator assignment and client introduction
- 1.5 business days: average time to response with doctor recommendations and invitations to support groups

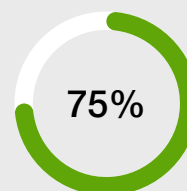


Peer Support & Education Highlights

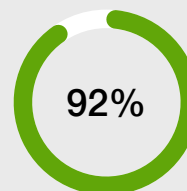
- Doubled the number of peer support group sessions for 1,337 attendees
- 3,000 members (+698) engaged in Facebook support groups
- Launched a new Peer Support Group for families impacted by brain trauma
- Launched on demand Joint Providership Accredited CMEs in partnership with Boston University Chobanian and Avedisian School of Medicine and hosted 6 live events
- Trained 213 doctors, nurses, and other medical professions through CME programs.



CLF HelpLine clients would recommend the service



Retention rate for Zoom Support Groups



CME Course Quality Rating



CLF MEDIA PROJECT

The CLF Media Project is the first and only concussion reporting curriculum designed specifically for sports media professionals and sports journalism students. Through more accurate reporting, sports media can provide children, parents, and coaches with potentially life-saving information, including how to recognize and respond to a concussion.



Major milestones

Surpassed 2,500 students taught all-time through the program and brought the Workshop U to our first HBCU institution, Morehouse College



Student reach

Taught the Concussion Reporting Workshop U to 582 students in 25 different classes directly and to 117 students in 5 different classes through the new virtual platform.



Virtual learning

Using platform Mindstamp, we launched a new virtual platform to support the Concussion Reporting Workshop U so it is available to any institution that wants it.



Reporting certifications

223 students took their next step with the educational materials by taking our Concussion Reporting Certification.



TEAM UP AGAINST CONCUSSIONS

Team Up Against Concussions (TUAC) is an education program designed to teach athletes to speak up for each other when they think their teammate may have a concussion.

Concussion Legacy Captains are CLF ambassadors committed to achieving our vision of concussion safety without compromise. Captains give the Team Up Against Concussions speech to their sports teams every season to set the tone that no athlete with a concussion should return to play before their brain is ready.



USA Lacrosse

USA Lacrosse TUSU Week was held from September 30 to October 5 reaching 450,000+ followers across platforms.



USA Hockey

USA Hockey TUAC Week was held in October 21-26 reaching 1,000,000+ followers across platforms and included advocacy from NHL player Jack Hughes.





STOP HITTING KIDS IN THE HEAD

Global landscape

The goal of Stop Hitting Kids in the Head is to convince every sport to eliminate repetitive head impacts under the age of 14 by 2026 so we can eradicate new cases of CTE.

Here's a look at the global landscape of youth sports regulations to see where we are focusing our efforts:

CANADA

Existing regulations:

No tackle football <8

No tackle rugby <10, modified tackle <12

UK

Existing regulations:

No heading in soccer <11

No tackle rugby league <7 in 2024, <8 in 2025, <9 in 2026

USA

Existing regulations:

No heading in soccer <11

No guidance on tackle football, rugby

AU & NZ

Existing regulations:

No tackle football <8, modified <10, no tackle rugby <6



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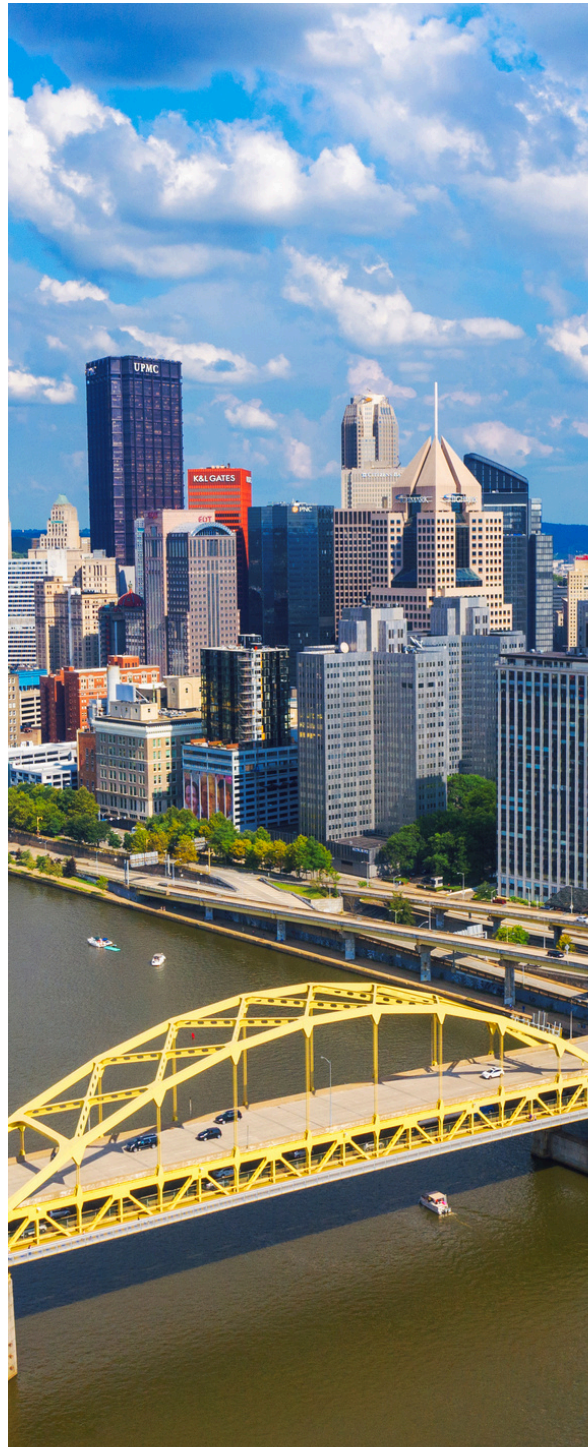
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FINANCIALS*

Public Support & Other Revenue

Contributions	\$3,588,921
Program Revenue	\$188,719
Investment Revenue	\$76,634
Total Revenue	\$3,784,274

Expenses in programs,
administration, &
fundraising categories

84% Programs

9% Administration

7% Fundraising

Expenses

Programs	\$2,765,628
Administration	\$394,423
Fundraising	\$425,619
Total Expenses	\$3,585,671

Statement of Financial Position

Cash, Cash Equivalents, & Investments	\$3,383, 703
Pledges	\$926,397
Total Assets	\$4,310,099

*Unaudited



 concussionfoundation.org

 info@concussionfoundation.org

 [@concussionfoundation](https://www.instagram.com/concussionfoundation)

 361 Newbury St. Boston, MA 02115