

Date of Hearing: April 16, 2024

ASSEMBLY COMMITTEE ON ARTS, ENTERTAINMENT, SPORTS, AND TOURISM

Mike Gipson, Chair

AB 3047 (McCarty) – As Amended March 21, 2024

SUBJECT: Youth athletics: chronic traumatic encephalopathy

SUMMARY: This bill would require the Surgeon General to convene a Commission on Chronic Traumatic Encephalopathy (CTE) and Youth Tackle Football to investigate issues related to the risks of brain injury associated with participation in youth tackle football.

Specifically, **this bill:**

- 1) Requires the Surgeon General to convene a Commission on CTE and Youth Tackle Football to investigate issues related to the risks of brain injury associated with participation in youth tackle football.
- 2) States the purpose of the Commission is to provide recommendations to the Governor and Legislature on strategies to reduce those health risks, including the minimum appropriate age for participation in youth tackle football.
- 3) Provides the Commission shall be led by the Surgeon General and consist of members selected by the Surgeon General, including, but not be limited to, members with expertise in public health, neuroscience, neurology, or other relevant fields.
- 4) Directs the Commission to review, investigate, and analyze issues relating to the risk of brain injury associated with participation in youth tackle football, including:
 - a) The risk of concussion, CTE, or other brain injury from participation in youth tackle football, including subconcussive head trauma and repetitive head impacts.
 - b) The short and long-term health consequences of concussion, CTE, or other brain injury in youth.
 - c) How the risks and health consequences described in paragraphs (a) and (b) vary with the age of, and the duration of participation by, the youth tackle football participant.
- 5) Requires, on or before January 1, 2027, the Surgeon General to publish a report on their internet website on the findings of the Commission, including recommendations on the following issues:
 - a) The appropriate minimum age for participation in youth tackle football.
 - b) Best practices for minimizing the risk of concussion, CTE, subconcussive trauma, repetitive head impacts, or other brain injury in youth tackle football.
- 6) Makes various Legislative findings and declarations.

7) Contains a Sunset clause of July 1, 2027, at which time the section will be repealed.

EXISTING LAW:

- 1) Establishes the Office of the Surgeon General within the California Health and Human Services Agency, and provides that it is responsible for all of the following (Health and Safety Code (HSC) Section 438 (a)(b)(c):
 - a) Raising public awareness on and coordinating policies governing scientific screening and treatment for toxic stress and adverse childhood events.
 - b) Advising the Governor, the Secretary of the California Health and Human Services Agency, and policymakers on a comprehensive approach to address health issues and challenges, including toxic stress and adverse childhood events, as effectively and early as possible.
 - c) Marshalling the insights and energy of medical professionals, scientists, and other academic experts, public health experts, public servants, and everyday Californians to solve our most pressing health challenges, including toxic stress and adverse childhood events.
- 2) Defines “youth sports organization” as an organization, business, or nonprofit entity that sponsors or conducts amateur sports competition, training, camps, clinics, practices, or clubs. (HSC 124240(b)(10))
- 3) Defines “youth tackle football league” as the organization that groups together youth sports organizations that conduct youth tackle football, administers rules, and sets game schedules. It may or may not be associated with a national organization. (HSC 124240(b)(11))
- 4) Requires a youth sports organization to comply with certain requirements related to athletes suspected of sustaining a concussion or head injury, including removal from the athletic activity and a prohibition on returning until he or she is evaluated by a licensed health care provider. (HSC 124235(a)(1)(A))
- 5) Requires youth sports organizations to give a concussion and head injury information sheet to each athlete on a yearly basis. (HSC 124235(a)(3)(A))
- 6) Requires a youth sports organization to offer concussion and head injury education, or related educational materials, to each coach and administrator of the youth sports organization, and requires each coach and administrator to successfully complete this education at least once, either online or in person, before supervising an athlete. (HSC 124235(a)(4)-(5)(A))
- 7) Prohibits a youth tackle football team from conducting more than two full-contact practices per week during the preseason and regular season. (HSC 124241(a))
- 8) Prohibits a youth tackle football team from holding a full-contact practice during the off-season. (HSC 124241(b))
- 9) Limits the full-contact portion of a youth football team practice from exceeding 30 minutes in any single day. (HSC 124241(c))

- 10) Requires a youth football team coach to annually receive a tackling and blocking certification from a nationally recognized program that emphasizes shoulder tackling, safe contact and blocking drills, and techniques designed to minimize the risk during contact by removing the involvement of a participant's head from all tackling and blocking techniques. (HSC 124241(d))
- 11) Requires each youth tackle football administrator, coach, and referee to annually complete all of the following: (HSC 124241(e)(1)-(3))
 - a) The concussion and head injury education required under existing law for coaches and administrators of a youth sports organization;
 - b) The Opioid Factsheet for Patients that existing law requires to be given to each athlete in a youth sports organization; and,
 - c) Training in the basic understanding of the signs, symptoms, and appropriate responses to heat-related illness.
- 12) Requires each parent or guardian of a youth tackle football participant to receive the concussion and head injury information for that athlete, and the Opioid Factsheet for Patients. (HSC 124241(f))
- 13) Requires each football helmet to be reconditioned and recertified every other year, unless stated otherwise by the manufacturer. Restricts the entities who can perform the reconditioning and recertification to only those entities licensed by the National Operating Committee on Standards for Athletic Equipment. Every reconditioned and recertified helmet must display a clearly recognizable mark or notice in the helmet indicating the month and year of the last certification. (HSC 124241(g))
- 14) Requires a minimum of one certified emergency medical technician (EMT), state-licensed paramedic, or higher-level licensed medical professional to be present during all preseason, regular season, and postseason games. Requires the EMT, paramedic, or higher-level licensed medical professional to have the authority to provide prehospital emergency medical care or rescue services, and remove any participant from the game who exhibits an injury, including, but not necessarily limited to, symptoms of a concussion or other head injury. (HSC 124241(h))
- 15) Requires a coach to annually receive first aid, cardiopulmonary resuscitation, and automated external defibrillator (AED) certification. (HSC 124241(i))
- 16) Requires at least one independent non-rostered individual, appointed by the youth sports organization, to be present at all practice locations. Requires the individual to hold current and active certification in first aid, cardiopulmonary resuscitation (CPR), AED, and concussion protocols. Requires the individual to have the authority to evaluate and remove any youth tackle football participant from practice who exhibits an injury, including, but not limited to, symptoms of concussion or other head injury. (HSC 124241(j))

- 17) Requires safety equipment to be inspected before every full-contact practice or game to ensure that all youth tackle football participants are properly equipped. (HSC 124241(k))
- 18) Requires every youth tackle football participant removed from a game or practice to comply with provisions of law requiring a parent or guardian to be notified, and that require written clearance from a licensed health care provider to return to athletic activity. Requires the injury to be reported to the youth tackle football league. (HSC 124241(l))
- 19) Requires each youth tackle football participant to complete a minimum of ten hours of noncontact practice at the beginning of each season for the purpose of conditioning, acclimating to safety equipment, and progressing to the introduction of full-contact practice. Prohibits youth tackle participants from wearing any pads, and to only wear helmets if required to do so by the coaches, during this noncontact practice. (HSC 124241(m))
- 20) Requires a youth sports organization to annually provide a declaration to its youth tackle football league stating that it is in compliance with this bill, and to either post the declaration on its internet website or provide the declaration to all youth tackle football participants within its youth sports organization. (HSC 124241(n))
- 21) Requires a youth tackle football league, on and after January 1, 2021, to establish youth tackle football participant divisions that are organized by relative age or weight or by both age and weight. (HSC 124242 (a))
- 22) Requires a youth tackle football league, on and after January 1, 2021, to retain de-identified information for the tracking of youth sports injuries. Requires this information to include the type of injury, the medical treatment received by the youth tackle football participant, and return to play protocols followed by the participant. (HSC 124242 (b))
- 23) States that nothing in this article, known as the California Youth Safety Act, shall prohibit any youth sports organization or youth tackle football league from adopting and enforcing rules intended to provide a higher standard of safety for youth tackle football participants than the requirements established under this article. (HSC 124243)

FISCAL EFFECT: Unknown. This measure has been keyed Fiscal by the Legislative Counsel.

COMMENTS:

- 1) Author's statement. According to the author, "There are other alternatives for young kids, other sports, other football activities like flag football – which the NFL is heavily investing in. There is a way to love football and protect our kids. We've come to realize that there is no real safe way to play youth tackle football. There is no safe blow to the head for 6, 7 and 8 year olds and they should not be experiencing hundreds of sub-concussive hits to the head on an annual basis when there are great alternatives."
- 2) Background. On October 3, 2023, this committee held an informational hearing on improving athlete safety in youth tackle football. The committee heard from a number of experts, including Dr. Chris Nowinski, the CEO and co-founder of the Concussion Legacy Foundation; Dr. David Camarillo, an associate professor of bioengineering, mechanical engineering, and neurosurgery at Stanford University; and Dr. Stella Legarda, the president

of the California Neurology Society. In addition, the committee received testimony from representatives of the California Youth Football Alliance about the current safety measures put in place with the signing of AB 1 by former Assemblymember Jim Cooper in 2019, as well as former players and family members impacted by CTE and head injuries.

A concussion in 2003 inspired Dr. Nowinski to start researching concussions and CTE, and he has been an advisor to the NFL Players Association since 2010 and an advisor to the Ivy League since 2011. In his testimony, he pointed out age restrictions in youth contact sports other than football as a reason for why previous legislative attempts to put age restrictions on youth tackle football were necessary to prevent children from receiving preventable repetitive head impacts.

In 2015, the movie *Concussion* was released starring Will Smith as Dr. Bennet Omalu, who first discovered chronic traumatic encephalopathy (CTE) in the brain of NFL Hall of Famer Mike Webster in 2002. The movie, based on a 2009 article called “Brain Game” published in *GQ* magazine, detailed conflicts between Dr. Omalu and the NFL over his research on CTE, and the possible nexus between this neurodegenerative disease and tackle football. This committee hosted a screening of the film in 2016, and many of the issues raised in the movie led to policy discussions regarding athlete safety that have seen their way into law.

Research to-date suggests that CTE is caused in part by repeated traumatic brain injuries, including concussions, and repeated hits to the head, called sub-concussive head impacts. Symptoms can include difficulty thinking, impulsive behavior, depression or apathy, short-term memory loss, emotional instability, substance abuse, suicidal thoughts or behavior, and difficulty planning or carrying out tasks. The disease often gets worse over time similar to Alzheimer's Syndrome and dementia. Most documented cases have occurred in athletes involved in contact sports such as football, wrestling, ice hockey, rugby, and soccer, as well as striking-based combat sports like boxing and mixed martial arts.

The exact amount of trauma required for the condition to occur is unknown, and a definitive diagnosis can only occur posthumously during autopsy. There is no specific treatment for the disease. There is no known cause for why some people develop CTE, but not others. There is also no proven association with the number of head injuries, the severity of head injury, or the duration of time an athlete is exposed to potential head injury. CTE has been found in teenagers, young adults, and middle aged persons.

- 3) Latest data and research. According to a study published by Nature Communications in June 2023, there is a large correlation between the increasing years of football played, as well as the cumulative exposure measures, and CTE status.¹ Research shows that the human brain does not fully develop until a person's mid-20s. Therefore, young athletes experiencing head injuries are at greater risk of long-term brain damage if injured during the critical stages of brain development.

According to Dr. Legarda, additionally a board certified pediatric neurologist, clinical neurophysiologist, and epilepsy specialist, a research study that included 214 former

¹ Daneshvar, D.H., Nair, E.S., Baucom, Z.H. et al. Leveraging football accelerometer data to quantify associations between repetitive head impacts and chronic traumatic encephalopathy in males. *Nat Commun* 14, 3470 (2023). <https://doi.org/10.1038/s41467-023-39183-0>

American football players found that those who began playing football before the age of 12 had more than two times the probability for clinically meaningful impairments in reported behavior regulation, apathy, and executive function, and more than three times the probability for clinically elevated depression scores.²

Dr. Legarda's presentation also included information from a study conducted by the CDC which states that youth athletes who play tackle football sustain 23 times more high-magnitude impacts per athletic exposure than a child who plays flag football.³ The findings suggest that non-contact or flag football programs may be a safer alternative for reducing head impacts and concussion risk for youth football athletes under age 14. According to her presentation there are more than 3.9 million pre-high school tackle football players between the ages of 6-14. That number drops significantly to 1.1 million high school football players, then just over 19,000 NCAA players, and almost 1,700 NFL players.

A study published in the *Annals of Neurology* in October 2019 found that there was a strong dose-response relationship for the number of years of football played with CTE neuropathology, doubling odds of disease every 2.6 years and doubling odds of severe disease among those with CTE every 5.3 years. Another April 2018 study published in the *Annals of Neurology* found that younger age of exposure to tackle football was not associated with CTE pathological severity, but predicted earlier neurobehavioral symptom onset.

According to a research by the Boston University School of Medicine, which was conducted through telephone clinical interviews with family and friends of 246 deceased football players, those who began tackle football before age 12 experienced symptoms an average of 13 years earlier than those who started playing at age 12 or older.⁴ The researchers, who controlled for total years of play, level of play, and factored in what decade athletes started playing (to account for different styles of play and protection through the years), found that each year younger that athletes began to play tackle football correlated with an earlier onset of cognitive problems by 2.4 years, and behavioral and mood problems by 2.5 years.

A leading research group in the field of CTE stated the problem as, "The exact relationship between repetitive mild traumatic brain injury, with or without symptomatic concussion, and CTE is not entirely clear, although it is possible that repetitive axonal injury sets up a series of metabolic, ionic, and cytoskeletal disturbances that trigger a pathological cascade leading to CTE in susceptible individuals. ... Longitudinal research efforts are underway to shed additional light on the specific variables related to head trauma, neuropathology, and clinical presentation of CTE that remain unanswered."⁵

- 4) Age of first exposure. Data provided to the committee by representatives of the NFL include studies published in journals and publications and were conducted by researchers representing institutions such as MIT, University of Pennsylvania, University of Texas, Medical College of Wisconsin, University of Delaware, Massachusetts General Hospital

² *Transl Psychiatry* (2017) 7, e1236; doi:10.1038/tp.2017.197

³ Waltzman et al, *Sports Health* 13(5):454-462;

https://www.cdc.gov/traumaticbraininjury/pubs/youth_football_head_impacts.html#

⁴ <https://www.bu.edu/articles/2018/youth-football-linked-to-earlier-brain-problems/>

⁵ Chronic Traumatic Encephalopathy: A Potential Late Effect of Sport-Related Concussive and Subconcussive Head Trauma, Gavett, Stern, and McKee, *Clin Sports Med.* 2011 January ; 30(1): 179–xi. doi:10.1016/j.csm.2010.09.007.

Institute of Health Professions, University of Michigan, Indiana University School of Medicine, Harvard Medical School, Spaulding Research Institute, The Ohio State University, University of North Carolina, Mass General Hospital for Children Sports Concussion Program, Princeton University, University of California, New York University, Stanford School of Medicine, Perelman School of Medicine, among others. Six of these seven studies encompass 9,000 individuals in comparative aspects of playing tackle football before and after 12 years of age. In addition, one study's cohort included national representation of 7th-12th graders. Studies were conducted from 2017-2023.

One study concluded that age the of first exposure to tackle football before 12 years old was not associated with worse behavioral, cognitive, psychological and physical (oculomotor functioning and postural stability) outcomes. The current findings suggest that timing of onset of football exposure does not result in poorer functioning in adolescence and young adults and may contribute to resilience through decreased levels of physically related psychological distress.⁶

Another study concluded that those playing football before 12 versus after the age of 12 did not differ significantly in their ratings of depression, anger, anxiety, headaches, migraines, neck or back pain, chronic pain, concentration problems, or memory problems. There were no statistically significant correlations between the age of first exposure to football.⁷

- 5) American Academy of Pediatrics. In November of 2015, the American Academy of Pediatrics (AAP) published a policy statement on tackling in youth football. AAP stated that the cumulative effects of concussions and the potential for a cumulative effect of subconcussive blows to the head, have been hypothesized as a causative risk factor for CTE. The recognition of these injuries and the potential for long term consequences have led some physicians to call for a reduction in the number of contact practices, a postponement of tackling until a certain age, and even a ban on high school football. The most commonly injured body parts in football at all ages are the knee, ankle, hand, and back. The head and neck sustain a relatively small proportion of overall injuries, ranging from 5% to 13%. Tackling is the most common player activity at the time of injury, and at the time of severe injury. The AAP includes the opinion that delaying the age at which tackling is introduced to the game would likely decrease the risk of injuries for the age levels at which tackling would be prohibited; however, once tackling is introduced, athletes who have no previous experience with tackling would be exposed to collisions for the first time at an age at which speeds are faster, collision forces are greater, and injury risk is higher. AAP stated that removing tackling from football altogether would likely lead to a decrease in the incidence of overall injuries, but it recognizes removing tackling from football would also lead to a fundamental change in the way the game is played.

A more recent study published by AAP in November 2019 found that while football had the highest overall incidence of concussions of the sports reviewed, nine other sports had a higher incidence of recurrent concussions, including baseball, wrestling, cheerleading, girls

⁶ Brett, Benjamin L., Daniel L. Huber, Alexa Wild, Lindsay D. Nelson, and Michael A. McCrea—Sports Health 11, no.4. (2019) 332-342

⁷ Iverson, Grant L., Jaclyn B. Caccese, Zachary C. Merz, Fionn Büttner, and Douglas P. Terry --Frontiers in neurology 12 (2021): 585.

and boys lacrosse, basketball and soccer. The study noted that rates of football practice-related concussions and recurrent concussions across all sports have decreased.

- 6) The California Youth Football Act. California has instituted various laws which require concussion prevention and coaches training in both schools and in youth sports, including requirements that schools must have concussion and return to play protocols for all sports. AB 1 (Cooper) of 2019, established the California Youth Football Act, which based on the standards proposed by AAP established a comprehensive safety scheme for youth tackle football including, among other things; not conducting more than two full-contact practices per week during the preseason and regular season; not holding a full-contact practice during the off-season; having coaches receive a tackling and blocking certification; having designated personnel annually complete specified concussion and head injury education, a specified factsheet related to opioids, and designated training relating to heat-related illness, as defined; meeting specified requirements relating to safety equipment; having a licensed medical professional present during games, as specified; having coaches receive first aid, cardiopulmonary resuscitation, and automated external defibrillator certification; and inspecting safety equipment.

The provision of the California Youth Football Act took effect on January 1, 2021. It is important to note that the Act requires leagues and organizations to retain information for the tracking of youth sports injuries, but no statewide organization is currently gathering that information. Additionally, the Act specifically does not prohibit any youth sports organization or youth tackle football league from adopting and enforcing rules providing a higher level of safety than the requirements of the Act.

- 7) Policy considerations and amendments. The committee and its members heard the perspectives of many youth tackle football coaches and league administrators from across the state earlier this year during the bill hearing for AB 734 (McCarty). Most believe that the safety measures in current law have been effective, and that more time and data is needed in order to demonstrate changes in youth athlete injury statistics. They also believe in a variety of the sport's positive impacts to communities and young athletes, which range from improving physical and social skills, to diversions from engaging in negative activities, especially in urban areas and disadvantaged communities with lower socioeconomic attainment.

The committee has requested amendments that would require, rather than simply allow, the Commission on CTE and Youth Tackle Football to request youth sports injury information from youth tackle football leagues, for which current law requires youth tackle football leagues to retain. This information may be shared by the leagues on a voluntary basis; however, it is the opinion of this committee that if the leagues are hoping to prove the effectiveness of improved safety measure that have been implemented, that it would be in their best interest to cooperate with the Commission and provide requested data.

Additional amendments requested by the committee require the Commission to include an expert on pediatrics, and push back the date required of the Surgeon General to publish their report until July 1, 2027, in order to provide additional time to request and receive injury information from youth tackle football leagues.

- 8) Arguments in support. According to the California Neurology Society (CNS), the sponsor of the bill, “CNS emphasizes the need for young athletes and their custodians to be fully informed about any inherent risks of participation. Early education aimed at both parents and athletes is key.

“We are confident that the Surgeon General will verify findings already available including the Center for Disease Control’s (CDC) data indicating youth tackle football athletes, between 6 and 14 years of age sustained 15 times more head impacts and 23 times more high magnitude head impacts than flag football participants.

“We also anticipate the Surgeon General will verify the connection between those repetitive head impacts and the risk for onset of Traumatic Encephalopathy Syndrome (TES) and CTE, even in individuals who were never diagnosed with a concussion during their lifetime.”

- 9) Arguments in opposition. According to the California Youth Football Alliance, with an oppose unless amended position on the bill, “AB 3047 focuses on a single youth sport in California (youth tackle football) and does not mention nor reference countless other contact sports or activities statewide such as Soccer, Wrestling, Basketball, Junior Boxing, MMA, Rugby, Flag Football, La Crosse, Motocross, and many other sports often played in more affluent settings. By its very nature, AB 3047 seeks to solely ‘investigate’ the sport of youth tackle football while asking the California Surgeon General to convene a Commission on CTE driven by California Taxpayer Dollars utilizing undisclosed and appointed selections by the State Surgeon General lacking constituent and legislative transparency. AB 3047 in its current proposed state, seeks via proposed study to establish a ‘minimum age of play’ for youth tackle football knowing there is no such legislative precedent in this area for youth sports and or activities of any kind or type in California... If the intent of AB 3047 was to unilaterally and equitably study the potential risks associated with all youth sports including high school level of play, the proposed legislation would most likely garner some level of understanding and potential merit from California Constituents.”

10) Prior and related legislation.

- a) AB 734 (McCarty), would have prohibited youth tackle football leagues, and youth sports organizations that conduct tackle football programs, from allowing the participation of any person younger than 12 years of age. (Status: The bill pass out of the Assembly’s Committee on Arts, Entertainment, Sports, and Tourism, but was not taken up on the Assembly Floor prior to the House of Origin Deadline for two-year bills.)
- b) AB 2127 (Cooley), Chapter 165, Statutes of 2014, limited interscholastic football teams to two full-contact football practices per week during preseason and regular season, prohibited the full-contact portion of a practice from exceeding 90 minutes in any single day, and completely prohibit full-contact practice during the off-season. The bill also required a student-athlete who has suffered a concussion or head injury to complete a graduated return-to-play protocol of at least seven days.
- c) AB 2007 (McCarty), Chapter 516, Statutes of 2016, requires a concussion and head injury information sheet to be signed and returned by the athlete and athlete’s parent or guardian before an athlete begins practice or competition in one of 27 sports offered by youth sports organizations, and proscribes return to play protocols for concussed athletes.

- d) AB 2108 (McCarty) from 2018 would have prohibited any person who is not at least 12 years of age from playing tackle football with a youth sports organization. The bill was withdrawn by the author prior to its hearing in the Assembly Arts, Entertainment, Sports, and Tourism Committee.
- e) AB 1 (Cooper), Chapter 158, Statutes of 2019, established the California Youth Football Act, with the purpose of establishing comprehensive safety measures for youth tackle football. Provisions of the bill included limits on the number of full contact practices per week, the amount of time per practice that can be full contact, specify the training programs that must be completed by coaches and administrators on tackling and blocking as well as concussion and head injury education, and regulate equipment inspections and recertification.
- f) AB 379 (Maienschein), Chapter 174, Statutes of 2019, deleted the specified designation of 27 sports from the definition of youth sports organizations, expanding the scope of the definition to any amateur sports competitions, training, camps, or clubs in which persons 17 years of age or younger participate. The bill added requirements to youth sports organizations for specified protocols relating to sudden cardiac arrest prevention, similar to the concussion protocols required by AB 2007 (McCarty) in 2016.
- g) AB 2300 (Cooper), Chapter 49, Statutes of 2020, revised the California Youth Football Act to delete the ability of an emergency medical technician or paramedic to “evaluate” youth tackle football participants, and instead specified that an emergency medical technician or paramedic has the authority to provide prehospital emergency medical care or rescue services consistent with their certification or license.
- h) AB 1348 (McCarty) from 2022 would have required the Surgeon General to convene a Commission on CTE and Youth Football to investigate issues related to the risks of brain injury associated with participation in youth football, and to provide recommendations to the Governor and Legislature on strategies to reduce this risk, including the minimum appropriate age for participation in youth tackle football. The bill was vetoed by Governor Newsom, who stated that the effectiveness of the California Youth Football Act, which took effect in January 2021, had not been sufficiently assessed and that more research is needed to better understand current safety measures and the risks.

REGISTERED SUPPORT / OPPOSITION:

Support

California Neurology Society

Opposition

California Youth Football Alliance (Unless Amended)

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