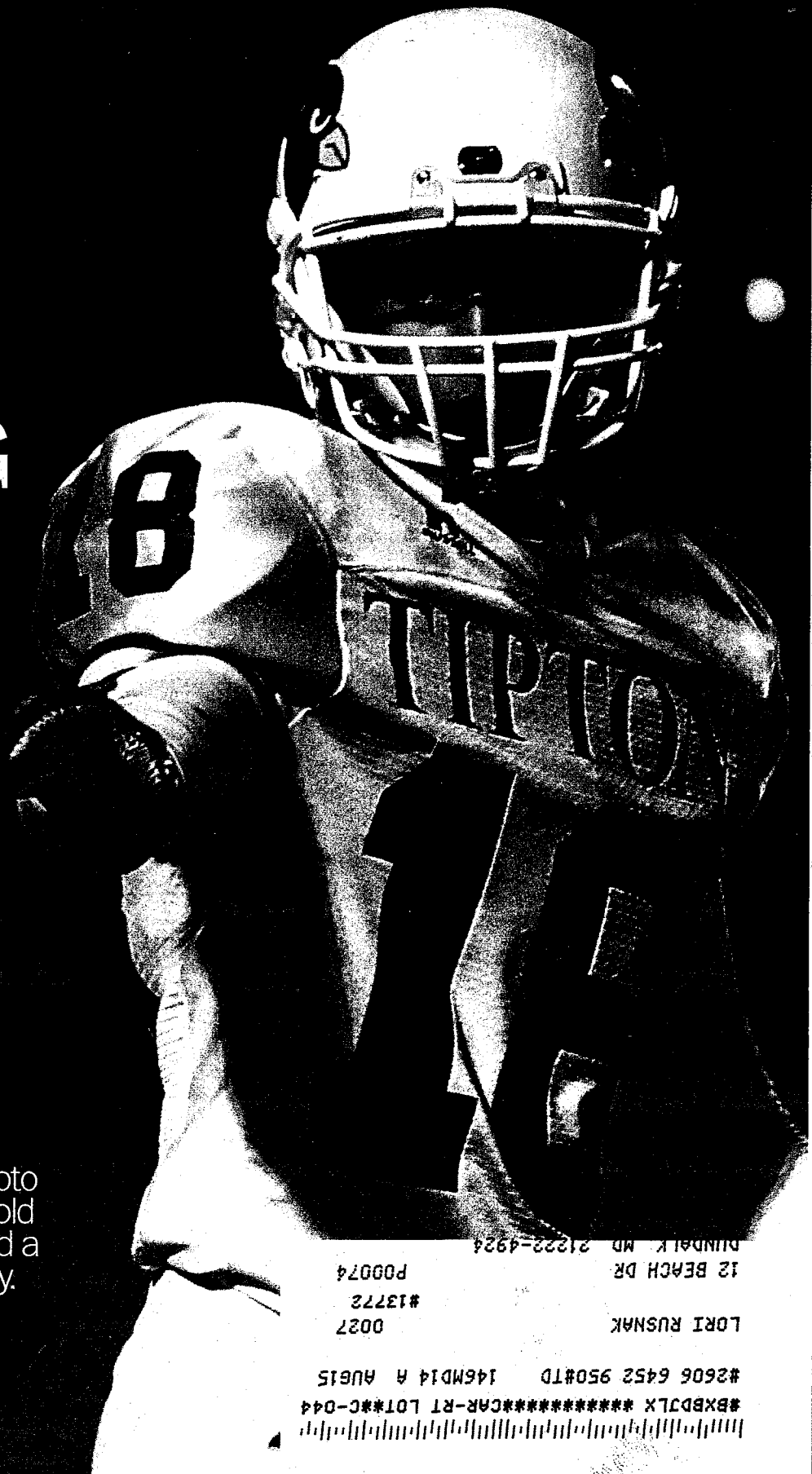


# HE DIED PLAYING THIS GAME.



Shortly after this photo was taken, 16-year-old Chad Stover suffered a traumatic brain injury. He never got up

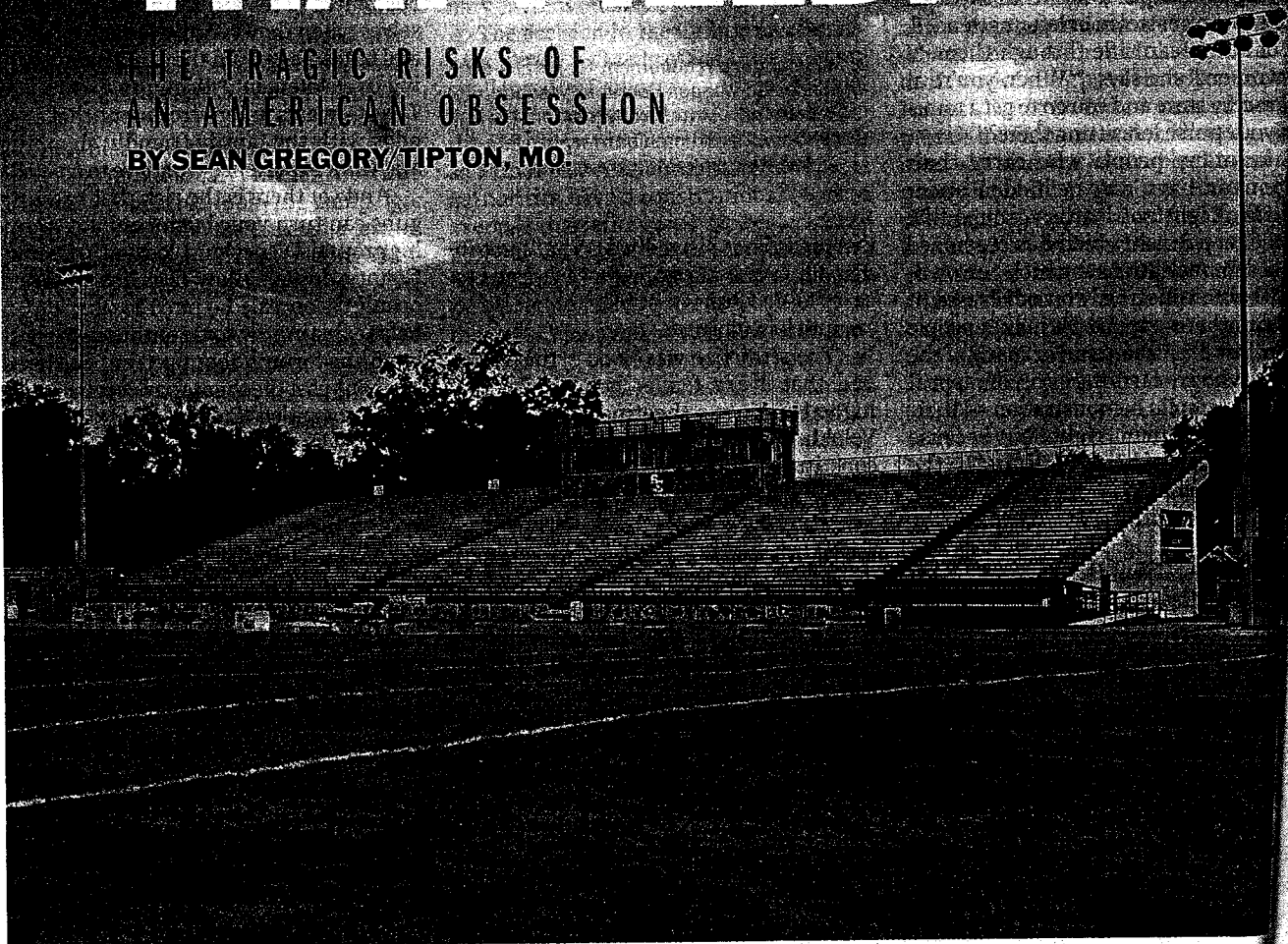
**BY SEAN GREGORY**

#####  
#BXBDJLX \*\*\*\*\*CAR-RT LOT\*\*C-044  
#2606 6452 950#TD 146MD14 A AUG15  
LORI RUSNAK 0027  
#13772  
P00074  
12 BEACH DR  
DUNBAR, MD 21222-4924

SPORTS

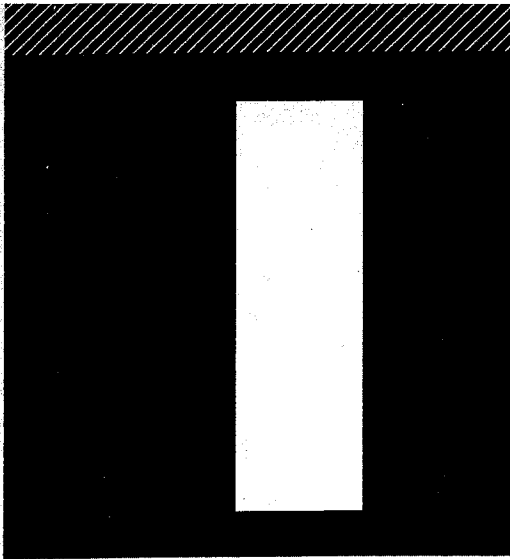
# 'IT DIDN'T CROSS MY MIND THAT I WOULDN'T SEE HIM COME OFF THAT FIELD.'

THE TRAGIC RISKS OF  
AN AMERICAN OBSESSION  
BY SEAN GREGORY TIPTON, MO.



The final play Chad Stover collapsed during a high school playoff game at Jennie Jaynes Stadium in Sedalia, Mo.

Photographs by Bryan Schutmaat for TIME



IT WAS HALLOWEEN NIGHT, AND THE TIP-  
ton Cardinals needed a tackle. With the  
team trailing Sacred Heart 27-18 in the  
opening round of the Missouri high school  
playoffs, a stop here—on first down and 10  
with less than seven minutes to play—  
would help keep its fading season alive.

As the running back took the handoff  
and sprinted right, Tipton's Chad Stover,  
a 16-year-old defensive back, dived at the  
player's legs with his arms outstretched.  
Chad's head collided with the runner's  
right thigh as the ballcarrier dodged the  
tackle to gain another few yards. Chad  
went down, and his helmet smacked into  
the ground. "Was it a crazy-hard hit?" asks  
Ben Smeltzer, a Sacred Heart wide receiver  
who was blocking Stover on the play. "No."

Chad wobbled to his feet, and after a  
time-out, he jogged to the sideline. Twice, a  
Tipton assistant coach asked if he felt well  
enough to return to the game. Twice, Chad  
said he was good. He went back in, and  
Tipton huddled up. "Something's wrong,"  
Chad told a teammate before lining up for  
the play. Suddenly his legs turned soft;  
teammate David Richardson, one of Chad's  
best friends since grade school, caught him  
as he collapsed. "We've watched football  
games for years and years and years," says  
Chad's mom Amy. "I usually don't get  
shook. But you just knew, the way his legs  
went out from underneath him."

Chad's father Ken raced out of the  
stands and motioned for Amy to follow.  
As she darted onto the field, a referee  
warned her to slow down on the slick and  
muddy turf. "I can't! I have to get there!"  
Amy replied.

Chad was limp when she reached him.  
"He was lying on the ground, eyes closed,"  
Amy says. "He had a tear going down each  
side of his face. I leaned down and I kissed  
his head, and I was pushing his hair back  
and talking to him. I remember some-  
body telling me, 'He can't hear you.' And  
I remember telling them, 'I don't care.'"



'THERE'S ALWAYS THE  
ONE GUY AT SCHOOL  
NO ONE CAN GET  
ENOUGH OF. THAT WAS  
BASICALLY HIM.'

—MICHAEL ROMANO,  
DESCRIBING HIS TEAMMATE  
CHAD STOVER, ABOVE



Players and coaches from both teams  
circled together, hands linked and heads  
bowed in silent prayer. "When he walked  
out the door to play football that day, it  
didn't cross my mind that I wouldn't see  
him come off that field," Amy says, sitting  
on her living-room couch nearly eight  
months later. "It just didn't."

### The Brutal Reality

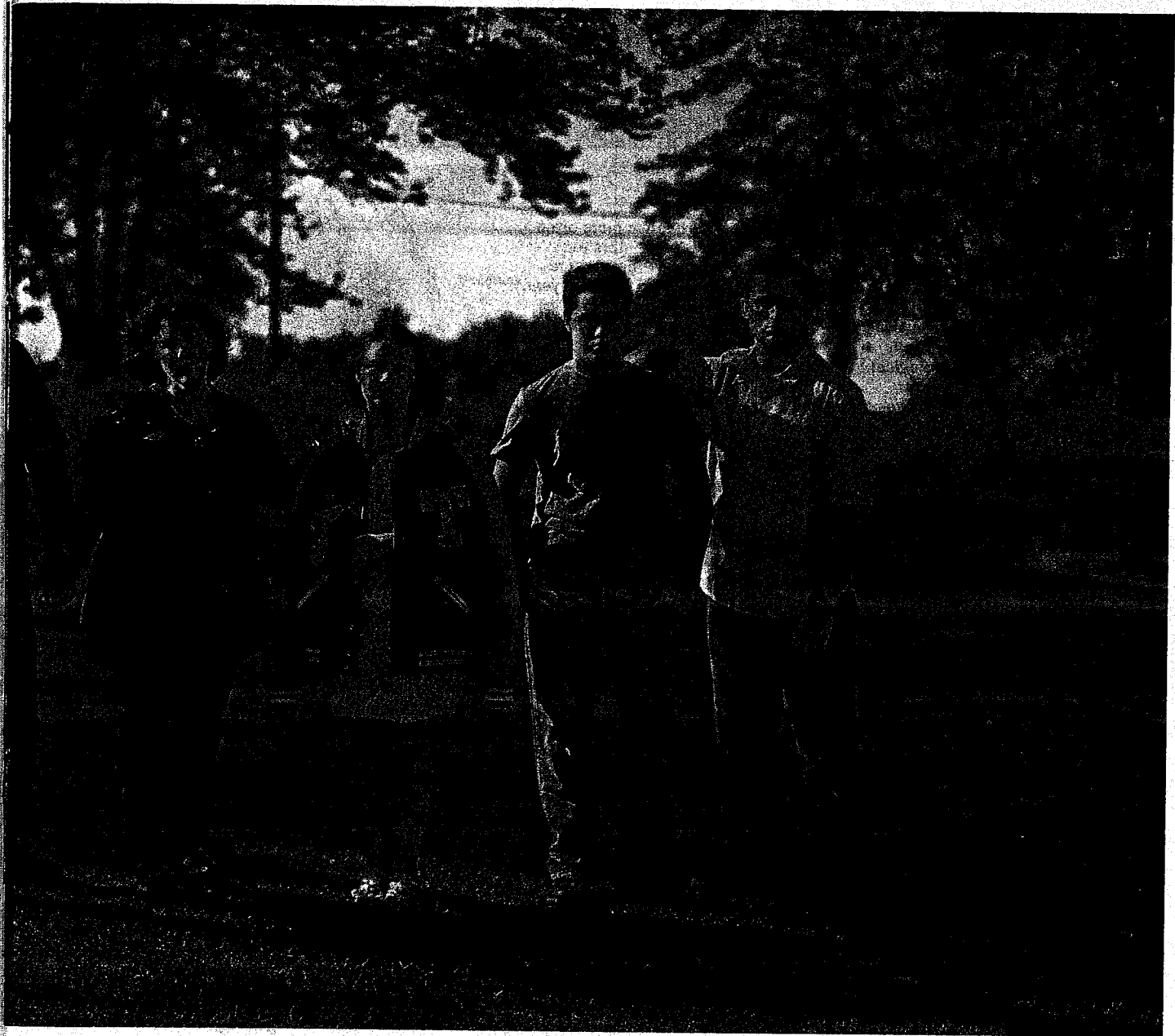
FOOTBALL'S GRIP ON THE TIME, PASSIONS  
and wallets of the American public has  
never been stronger. But as another season  
gets under way, the game is under a shad-  
ow. One of the worst weeks in professional  
football's half-century march to cultural  
dominance began on Sept. 8, when grainy  
surveillance video posted on TMZ.com  
showed Baltimore Ravens star Ray Rice  
knocking his fiancée unconscious inside  
a casino elevator. The appalling footage  
forced the National Football League to  
punish Rice with something more than  
a wrist slap, which in turn cast a harsh  
glare on the NFL's lax handling of other  
players who had recently been arrested—  
and in one case convicted—for domestic  
violence. The next shoe dropped four days  
later, when Adrian Peterson, another star  
running back, was indicted on charges of  
abusing his 4-year-old son.

These stories seized the headlines and  
all but eclipsed a disturbing indictment



of the game itself. In a court filing made  
public on Sept. 12, the day Peterson was  
charged, the NFL estimated that nearly  
one-third of former players will develop  
dementia, Alzheimer's disease or other  
debilitating neurological disorders like  
Parkinson's and ALS. For years, the NFL  
had denied a link between blows to a  
player's head on the field and subsequent  
brain damage. This admission—based  
on data crunched by actuaries as part of  
a settlement between the NFL and some  
5,000 former players who sued the league  
for allegedly covering up the risks of  
concussions—is a blunt confirmation  
that pro football players are far more likely  
than the general population to become se-  
verely brain damaged.

"Hopefully, that sort of prediction will



**The ultimate loss** *From left: Chad's father Ken, mother Amy and siblings Mandy, Kenton and Zane in the family's yard in central Missouri. Kenton, a high school freshman, has given up football*

lead to a larger discussion around football safety," says Chris Nowinski, a former Harvard football player who co-founded the Sports Legacy Institute, a nonprofit dedicated to reducing brain injuries. "What does this mean for high school players? What does this mean for youth players? How much brain injury can we accept?"

Nowhere is this discussion more urgently needed than in the cherished culture of high school football. In a study on concussion rates in high school sports published on Sept. 17, researchers at the Colorado School of Public Health found that football had the highest incidence of the brain-rattling impacts—nearly 45% more than the runner-up, girls' soccer. That rate, which accounts for games and practices, more than doubled for high

school football players from 2005 through the 2013–14 school year. This steep increase reflects greater awareness of concussion risks: kids, coaches and parents are more likely to report head injuries. It also raises questions about the nature of the game.

What's more, it doesn't take a concussive hit to cause lasting damage. A recent study of 25 college football players with no formal concussion history, published in the *Journal of the American Medical Association*, found that the players had significantly less than normal volume in

the hippocampus, the region of the brain that controls memory. In April, researchers from the University of Rochester published a study showing that the brains of another group of college players with similarly concussion-free records had significant changes in their white matter, which is crucial for basic cognitive functions.

Even football's youngest, smallest players are susceptible to brain injuries. Virginia Tech's biomedical-engineering department tracked 19 boys ages 7 and 8 during the 2011 and 2012 seasons. The researchers counted 3,061 blows to the heads of the boys, 60% of which occurred in practice. None of the kids suffered a concussion, but some of the shots they took were brutal: 11 of the hits registered a g-force of 80 or greater. "That's the level you might

# YOUR BRAIN ON TRAUMA

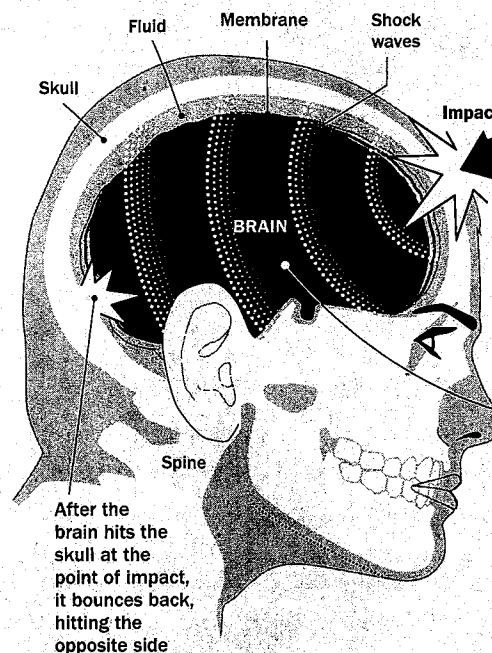
Traumatic brain injury (TBI) happens in an instant, but its effects can be lasting—and not always in the ways you would think.

"Head injuries are all around us, and we need to better understand the long-term risks," says Dr. Geoff Manley, vice chairman of neurological surgery at the University of California, San Francisco. We also need to do better at screening for brain injury in the first place, he says.

Though it's widely believed that TBI results only from direct head trauma and loss of consciousness, it can happen after any kind of "external-force injury to the head," according to Manley. Both immediate shots to the head and indirect blows, like contact to another body part that causes the head to jerk around, have the potential to injure the brain.

These injuries happen more often than we realize. The Centers for Disease Control and Prevention records about 2.5 million TBIs per year. But that count is based on hospital data, and many people who suffer head injuries don't end up in the ER. "We're missing a whole lot of folks," Manley says. "It's not alarmist to say the number is upwards of 5 million."

The long-term risks of TBI are not fully known, but scientists have documented some troubling links. Research has shown a relationship between TBI and attention deficit disorder, problems with decision-making, increased aggression, mood irregularities and a greater risk of devastating forms of dementia like Alzheimer's. "The literature is adding up," says Manley. "There's real cause for concern."



see in car crashes," says Stefan Duma, a Virginia Tech professor.

As the risk of concussions and brain trauma has become better understood and more widely known, fewer young people are playing the game. From 2007 to 2013, tackle-football participation fell 26.5% among U.S. kids ages 6 to 12, according to the Sports & Fitness Industry Association—the sharpest decline of any major team sport. The falloff is happening across the U.S., from New Hampton, Iowa, which scrapped its third- and fourth-grade tackle leagues in favor of flag football, to Marshall, Texas, in the heart of Friday Night Lights country, where seventh-graders are no longer allowed to play full contact.

"Would you let your son play football?" has become an increasingly popular question to ask of former pros, who now know that the price of playing is a haunted retirement spent watching for signs of dementia. Even the President of the United States has weighed the safety issue. "I'm a big football fan, but I have to tell you, if I had a son, I'd have to think long and hard before I let him play football," Barack Obama said last year. (He later said he wouldn't let his hypothetical son play in the pros.)

Hoping to reverse this slide, leagues from Pop Warner to the pros are regulating the amount of contact in practice. In July, California adopted a law banning full

contact—like blocking and tackling—in youth football during the off-season while limiting it to three hours per week in season. Arizona, Michigan and Texas have adopted contact limits. At the college level, conferences like the Pac-12 and Ivy League have set a weekly cap on full-contact hours. Even the NFL now allows teams just 14 full-contact practices during the regular season.

But those rules apply only to practices. Football is, at its core, a violent sport. In games, every play is a collision of bodies—and often brains. And the potential for danger is particularly acute at the high school level, where concussion rates are 78% higher than in college football, according to the Institute of Medicine. Eight people died playing football in 2013, the highest toll since 2001, when there were nine, according to the National Center for Catastrophic Sports Injury Research at the University of North Carolina. All were high school players. During the 2013-14 academic year, no other high school sport directly killed even one athlete.

The 1.1 million high school football players are too old to be coddled in peewee leagues but often lack the medical care and support available to college and pro players. There is no national organization governing high school play, so each player's safety depends in part on whatever local regulations exist and the vagaries of school budgets. It's at this level, perhaps

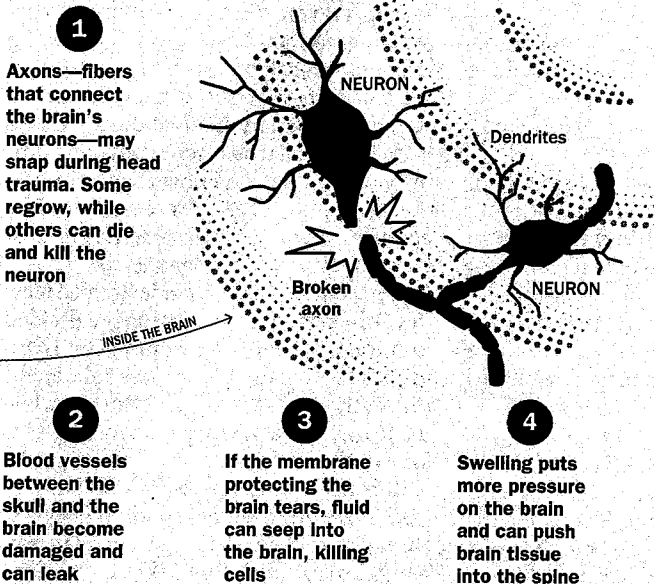
more than any other, that we need to ask a fundamental question: How much risk is too much?

## "Pray for Chad"

TIPTON'S POPULATION HOVERS AROUND 3,200, and you can take a pretty good census on Friday nights in autumn. High school football is the glue of this central Missouri community, which straddles U.S. Highway 50 about a half-hour west of the state capital, Jefferson City. Heading into 2013, Tipton had been dominant, winning 68 straight regular-season games. But the Cardinals stumbled in the season opener, losing 39-0 to Sacred Heart, and they limped into the playoffs with a 4-5 record. Still, Chad was feeling confident about the rematch. "I really think we can do it," he told his mother as he hopped around the kitchen before the game, excited about that night as well as his upcoming birthday and a hunting trip planned for the weekend. "This team has the potential. Wouldn't it be cool, Mom, if it clicked? And we were the team that actually went further than all the other schools that had all the hype?"

The game was tight from the start. After the teams traded touchdowns, Sacred Heart marched down the field and was close to scoring again. With the ball near the goal line, Sacred Heart called a running play. As Chad drew a bead on the ballcarrier, the two boys lowered their

## WHEN A TRAUMATIC BRAIN INJURY OCCURS



heads, and their helmets met with a rattling crack. It was a nasty-looking collision, but Chad popped right up. Teammate Ryan Wood ran over to check on him but didn't see anything out of the ordinary. Neither did his friend Dylan Cooper, Tipton's quarterback.

Chad's tackle kept Sacred Heart from scoring, and Tipton ended the second quarter with a 12-7 lead. "At halftime, we mainly talked about strategy," says Cooper. "How can you beat your man? His responses were fine."

Chad's friend Richardson says Chad was quieter than usual when the team took the field for the second half. "He was acting kind of weird," Richardson recalls. If so, the coaches did not notice. Chad stayed in the game. In the fourth quarter, a touchdown pass put Sacred Heart ahead, 27-18. It would be the final score.

Two Sacred Heart parents—a registered nurse and an ophthalmologist—rushed out of the stands to attend to Chad when he fell. Missouri does not require an athletic trainer or ambulance at football games, and neither was in attendance at this public-school field in Sedalia. Chad was breathing "shallow and slowly" when the fire department arrived at 9:15 p.m., according to government records, and was unresponsive to "verbal and painful stimuli," like a hard pinch. Knowing that the boy's brain was starved for oxygen, a fire official cleared an airway and put a bag

valve mask over his face. The ambulance arrived about eight minutes after the 911 call and ferried the unconscious player to a helipad not far from the stadium. Chad was airlifted about 50 miles (80 km) to the trauma center at University Hospital in Columbia.

The Stovers followed in a car. It was a rough arrival. "A doctor came in and introduced himself, and he looked right at us and said, 'Chad has a catastrophic injury,'" says Amy. "If you have other family members, you need to call them right now." There was no intro. It was... *voooooom*. I felt like I had been shot."

Chad was put on life support with significant hemorrhaging and oxygen deprivation in his brain, and for the next two weeks the family kept a vigil at his bedside. Family, friends and even rival players rotated through, and on some nights the crowd in the waiting room swelled to almost 80 people. "Pray for Chad" became a statewide rallying cry. The Diocese of Jefferson City organized a novena—nine consecutive nights of prayer—at the Catholic church in Tipton, and red ribbons were tied around seemingly every tree and signpost in town. California, a nearby school, painted Chad's number, 18, onto its field.

Amy provided occasional updates on CaringBridge.com. Early in the morning after Chad's 17th birthday, which was Nov. 8, Amy wrote, "No progress today but

it was a good day. I got to be with my Chad. I got to hold his hand, smell his skin, kiss his eyes—just hold onto him. One of our nurses gave me a gift. I got to help wash his hair today. He loved that as a baby. I love you Chad Austin Stover. Happy Bday my dear sweet boy."

But there was no good news to report. "We seem to slip backwards a little more everyday," Amy wrote on Nov. 12. "He has so many different injuries going on in that beautiful head of his." Two days later, the family gathered around his bed to say goodbye. Amy held one of Chad's hands and sang "You Are My Sunshine"—"because that's what I sang to him when he was a baby." Ken held his son's other hand. "I told him how proud I was of him. How much I loved him. And it was O.K. to go." Within hours, he was gone.

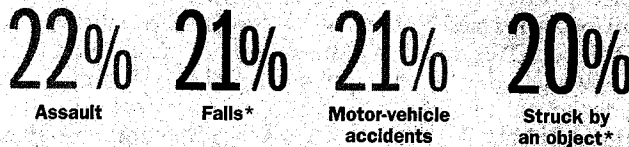
### Changing the Game

THE OFFICIAL CAUSE OF DEATH WAS blunt-force injury to the cranium. The autopsy found Chad to be a "well-developed, well-nourished slender young man" with no history of head trauma. It is impossible to know if the collision just before Chad collapsed caused the fatal injury or whether that blow simply triggered a second-impact syndrome related to the helmet-to-helmet collision in the first quarter. "Sometimes a single, less violent hit to the head can do all the damage alone," says Jamshid Ghajar, a professor

## HEAD COUNTS

Every year in the U.S., traumatic brain injury accounts for nearly 2.5 million emergency-room visits.

Top 4 causes for those TBI-related hospitalizations (ages 15 to 24)



\*Can include sports injuries

Football led to more concussions than any other high school sport in the 2013-14 school year.

Concussions per 10,000 high school players in games



Sources: NIH; CDC; National High School Sports-Related Injury Surveillance Study

of neurosurgery at Stanford University School of Medicine and the president of the Brain Trauma Foundation.

Since Chad died, the Stovers have lobbied Missouri to mandate ambulances at all football games. Would that have saved their son? "We don't have the luxury of knowing the big 'if,'" Amy answers. "And I don't want any other mother to ever go through that."

The Missouri State High School Activities Association says it will review the Stovers' proposal with its medical advisory committee. But a policy change is unlikely: no state requires an ambulance at regular-season high school football games, according to the most recent survey from the National Federation of State High School Associations. Nor do most states require an athletic trainer at every game. The cost, schools say, is prohibitive. (Tipton required a trainer and an ambulance at all varsity home football games even before Chad's death.)


According to the National Athletic Trainers' Association, only 39% of public high schools have access to a full-time certified athletic trainer, and 30% of schools have no training services at all. Changing this could be a valuable first step. "The most important push we in the medical community can make to improve safety in sports is to have athletic trainers at more events," says Allen Sills, a professor of neurological surgery at the Vanderbilt Medical Center. "People think trainers just ice and tape ankles. No—they specialize in the initial treatment of serious injuries."

Other attempts to make football safer have focused on the equipment. For example, a sensor-equipped skullcap from Reebok and the tech startup MCro triggers lights below the back of the helmet after hard hits, the idea being that a prudent coach can see the severity of a blow and remove the player from the game. But many high schools can't afford the latest gear, and no helmet on the market can prevent a concussion. "We are very careful to say that helmets are the third level of protection for football players," says Virginia Tech's Duma, an expert in helmet safety. "The first is the rules, the second is coaching. Kids shouldn't be doing silly drills in practice where they're hitting each other in the head."

Given the severity of Chad's brain trauma, no helmet, trainer or ambulance may have made a difference. According to the autopsy, Chad sustained a level of brain

hemorrhage "more usually seen in high-speed motor-vehicle accidents with unrestrained occupants. Such hemorrhages are often fatal, and even with immediate and supportive care severe disability is the best outcome that can be hoped for should death be prevented."

It simply isn't possible to play football without getting hit in the head. And no amount of smart coaching, new equipment or emergency medical care can change that. That's why one prominent concussion expert, Boston University neurosurgeon Robert Cantu, has called for a ban on tackle football for players under 14,

  
**'I TOLD HIM HOW  
PROUD I WAS OF HIM.  
HOW MUCH I LOVED  
HIM. AND IT WAS  
O.K. TO GO.'**

—KEN STOVER, ON HIS LAST  
WORDS TO HIS SON

arguing that younger brains are more susceptible to injury and that a reduction in head contact before adolescence would reduce the chance of long-term brain damage. "All these things are steps in the right direction," Cantu says of the various safety efforts. "It makes football safer, but it still has a long way to go."

Does the public have the will to push the game further? For all the bad publicity and damning scientific research, the business of football is bigger than ever. Annual revenue for the NFL is some \$10 billion, tops among U.S. professional sports leagues. Legions of fantasy-football players hang on every game, and pro games are now broadcast on television three days a week. The NFL expects its yearly haul to grow to \$25 billion by 2027. On Sept. 11, three days after the Rice video exposed an ugly face of the national obsession, 20.8 million people watched Rice's former team, the Baltimore Ravens, play the Pittsburgh Steelers on CBS and the NFL Network.

### Learning to Let Go

AS THE TIPTON CARDINALS OPENED THIS year's season on Aug. 22, one promising freshman wasn't on the field. Kenton Stover, Chad's 15-year-old brother, decided to give up football after Chad died. He says he recalls headaches from collisions during youth games, and now that he knows the risks, his decision was easier. And he doesn't want to worry his parents. "It's just scary for all of us now," he says.

Only one of Chad's friends stopped playing. Others thought of quitting but decided to suit up, believing he would want them to. "It's been really tough—we talk about him every day," says Cooper. "But we're trying to move on and win games, because we know he's watching over us every time."

It isn't easy to abandon football in Tipton. "Here, high school football is everything," says Stewart Wolf, a construction worker drinking a Bud Light at the Sky-light Bar on Tipton's block-long downtown. "There's not a lot to do in Tipton." On Friday nights, fans pack the bleachers and sit on the hill behind the east end zone. Often there are so many people that the overflow crowd spills into the parking lot of the Koechner turkey-coop manufacturing business across Highway 50.

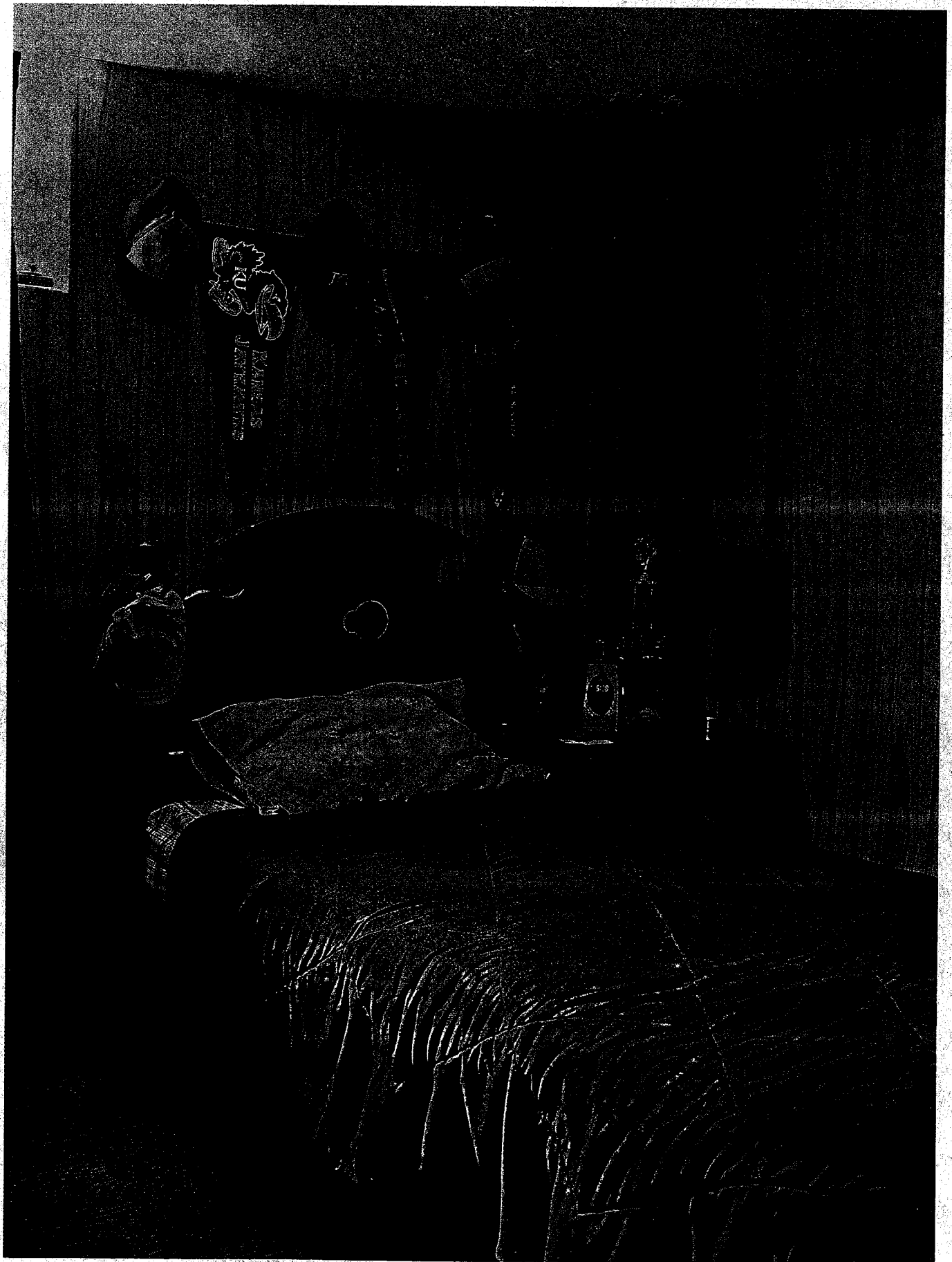
Amy and Ken don't want to prevent other kids from playing football, and they still follow the Kansas City Chiefs every Sunday. But they can't bear to watch Tipton's games anymore, despite missing them. "Football really, really promotes community," Amy says. "You're in the stands, you turn to someone and say, 'O.K., I'll see you next Friday night.' I look at that football field now, and it's so, so hard."

In June, a sign went up in front of Tipton Junior and Senior High School: IN MEMORY OF CHAD STOVER, it says on the front, with #18 FOREVER A CARDINAL on the back. At the baseball field at Tipton City Park, Kenton picks loose grass from the stones surrounding a small monument with a Cardinals logo on it. CHAD STOVER BULLPEN, it says, FOR THE LOVE OF THE GAME. Kenton looks forward to chasing his major-league dreams here. "I'm going to be a better pitcher," says Kenton. "Because ever since he's passed, it's like he's right here with me."

His father agrees. "He's right there, he's right with you, buddy," Ken says, fighting tears. "Forever." ■

TO WATCH A VIDEO PORTRAIT OF THE  
STOVER FAMILY, GO TO  
[time.com/tipton](http://time.com/tipton)

BRYAN SCHUTMAAT FOR TIME



**Daily memorial** *Chad's side of the bedroom he shared with his older brother has been left unchanged*