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H2H
HARD HATS TO HELMETS

Hard Hats to Helmets

Why Should We Make the Change ?

Joseph Whiteman, CSP, CHST

Director of Safety Services

American Society of Concrete Contractors

AMERICAN SOCIETY OF CONCRETE CONTRACTORS
Enhancing the Capabilities of Those Who Build with Concrete

AGENDA

- Introductions
- My call to action- beyond the injury…
- What are TBIs?
- History of hard hats
- Technical and performance standards
- Why should I make the change
- Future technology improvements
- Helmet Rating Program
- H2H Website
- Case Study
- Questions

Who is ASCC?

- Founded in 1964
- Represent over 800 Companies Worldwide
- Concrete Contractors, General Contractors, Manufacturers, Designers, Suppliers and other Concrete Industry Professionals
- Unmatched Industry Knowledge, Best Practices , Recognition
- Safety Centric
- Concierge Trade Association

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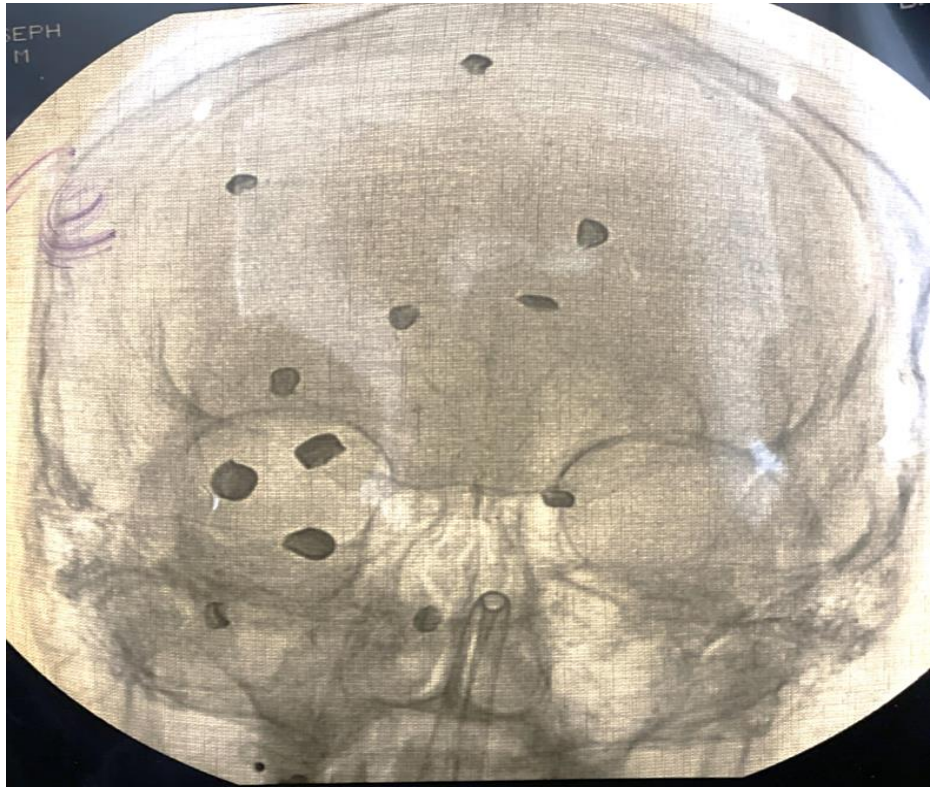
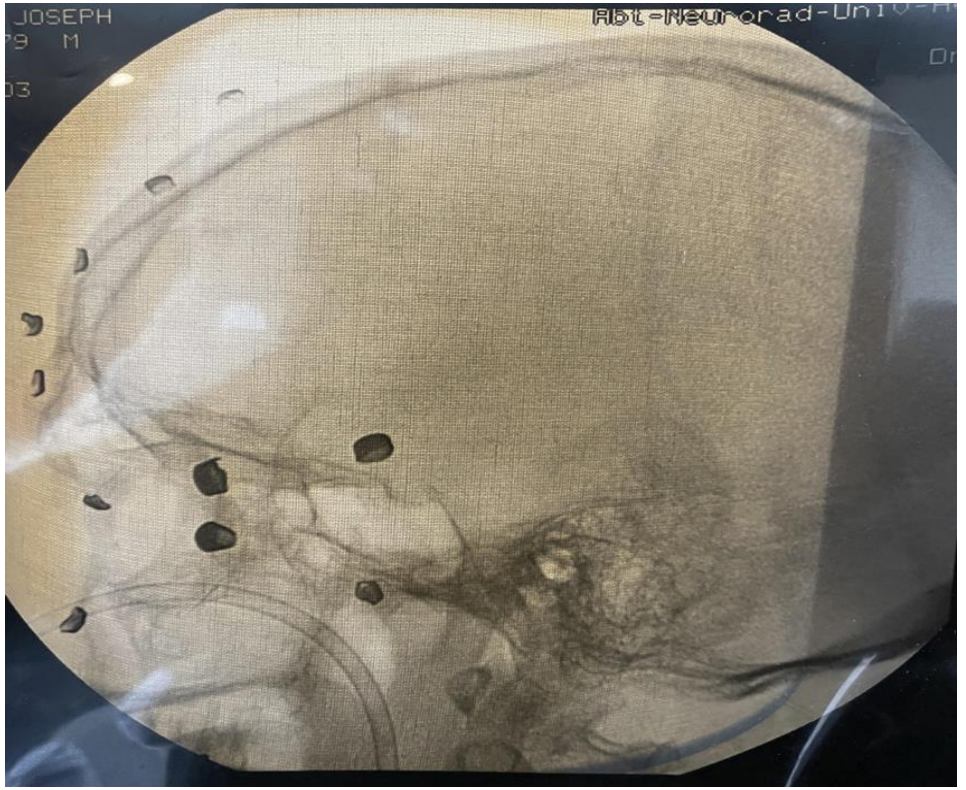
My Call to Action- August 18, 2003





September 17, 2023

Welcome to Epilepsy…

- Common long term side effect in TBIs to Frontal and Temporal Lobes (manifests appx 20 yrs.).
- First time seeing a Neurologist since separating from military service- over 20 years!
- Cleveland Clinic found that 65% of men avoid going to the doctor as long as possible, even when they have symptoms of a serious condition.
- No idea of potential for seizures… Impact and emotional toll on my wife and kids.

Managing Chronic Health Impacts

- **Psychosocial Adjustment-** Managing emotional challenges, physical limitations, and changes in relationships and routines.
- **Health-Related Quality of Life Impact-** Effects of a health condition on physical, emotional, and social well-being, including medication and family dynamics.
- **Burden of Illness or Disease-** The overall impact of a condition on life, including symptoms, mental health, and relationships.
- **Living with Residual Trauma-** Coping with long-term emotional and physical effects, including educating family and managing shame or fear
- **Chronic Illness or Injury Adaptation-** Adjusting to lifestyle changes and lasting effects of a chronic condition or injury.

Traumatic Brain Injury

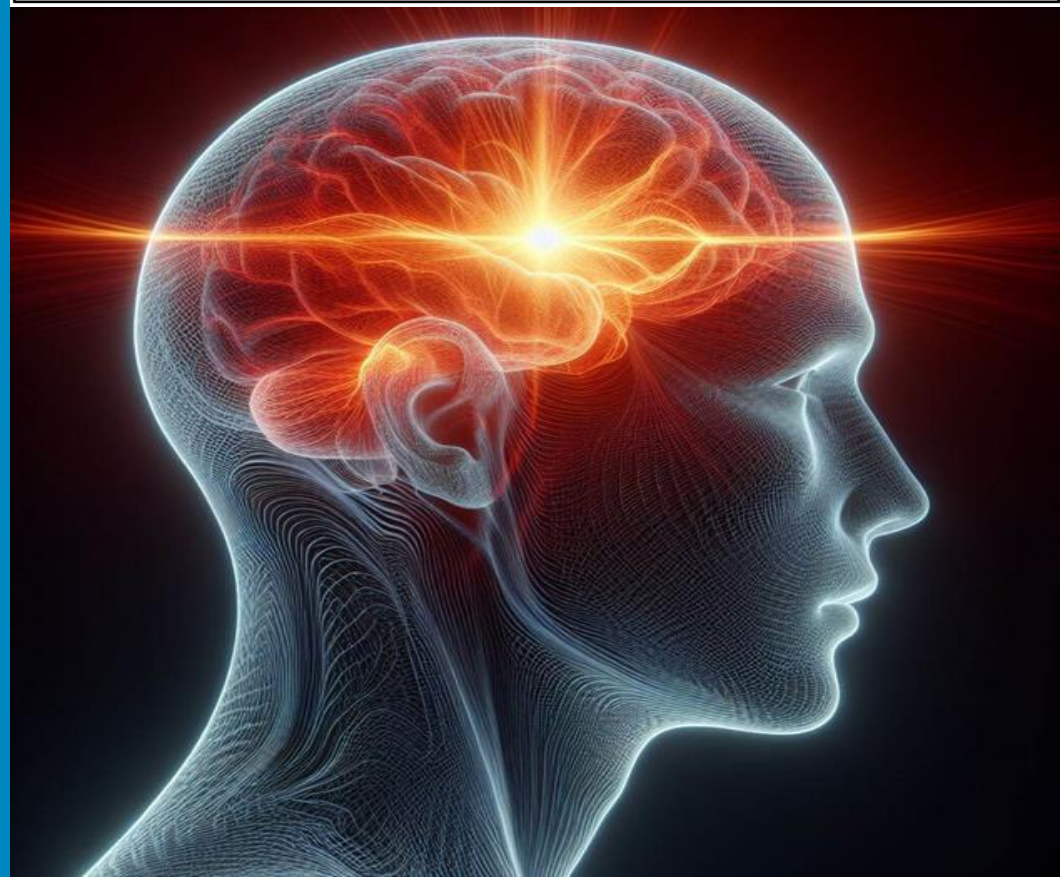
CDC defines TBI as:

- Blow or jolt to the head or penetrating head injury that disrupts the normal function of the brain.

- Ranges from “mild” i.e., a brief change in mental status or consciousness to “severe” i.e., an extended period of unconsciousness or amnesia after the injury. Potentially fatal.

TBI claims average $150,000 ++
LTA claims average $ 50,000

17% of claims between $3 million and $5 million. 30% of claims costing more than $10 million.



Safety+Health
The Official Magazine of the NSC Congress & Expo

Home

NIOSH: Construction workers at high risk for traumatic brain injuries

March 29, 2016

Morgantown, WV – Construction workers sustain more traumatic brain injuries than emplo
other type of workplace in the United States, according to a recent report from NIOSH.

Safety interventions must be emphasized in the construction industry, in which more than
workers died of a traumatic brain injury from 2003 to 2010, researchers said.

Traumatic brain injuries represented one-quarter of all construction fatalities during the eig
study period, according to the report. More than half of fatal work-related traumatic injuries
result of falls – particularly from roofs, ladders and scaffolds. Workers 65 and older were n
more likely to sustain a fatal traumatic brain injury than workers 25 to 34 years old. Meanw
workers at organizations with fewer than 20 employees were more than 2.5 times more lik
from a traumatic brain injury than those who worked for organizations with more than 100

Srinivas Konda addressed the findings in a March 21 NIOSH blog post. Konda is an assoc
fellow in the NIOSH Division of Safety Research

From 2003 to 2010, 2,210 fatal TBIs occurred in construction at a rate of 2.6 per 100,000 FTE workers. 25% of all construction fatalities.

AMERICAN JOURNAL OF INDUSTRIAL MEDICINE 59:212–220 (2016)

Fatal Traumatic Brain Injuries in the Construction Industry, 2003–2010

Srinivas Konda, MPH,* Hope M. Tiesman, PhD, and Audrey A. Reichard, MPH

Background *Research on fatal work-related traumatic brain injuries (TBIs) is limited. This study describes fatal TBIs in the US construction industry.*
Methods *Fatal TBIs were extracted from the Bureau of Labor Statistics Census of Fatal Occupational Injuries.*
Results *From 2003 to 2010, 2,210 fatal TBIs occurred in construction at a rate of 2.6 per 100,000 full-time equivalent (FTE) workers. Workers aged 65 years and older had the highest fatal TBI rates among all workers (7.9 per 100,000 FTE workers). Falls were the most frequent injury event (n = 1,269, 57%). Structural iron and steel workers and roofers had the highest fatal TBI rate per 100,000 FTE workers (13.7 and 11.2, respectively). Fall-related TBIs were the leading cause of death in these occupations.*
Conclusions *A large percentage of TBIs in the construction industry were due to falls. Emphasis on safety interventions is needed to reduce these fall-related TBIs, especially among vulnerable workers.* Am. J. Ind. Med. 59:212–220, 2016. Published 2016. This article is a U.S. Government work and is in the public domain in the USA.

Innovation In Fall Protection

- Technology and improvements progressed rapidly over the years
  .
- More specific to scope, trades and fall hazards.
- Head protection technology has been relatively stagnant by comparison.

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Isn’t There Something Better?

Looking At The Past

1929

Bullard for mining and then Navy ship building. Made from steamed canvas, leather brim, black paint and glue

1930's

Hard hats evolved and were made from metals

1940's

MSA Skullguard fiberglass

1969
MSA in Space
MORE INFO

1960s
International P
MORE INFO

1961
New Helmets Introduced

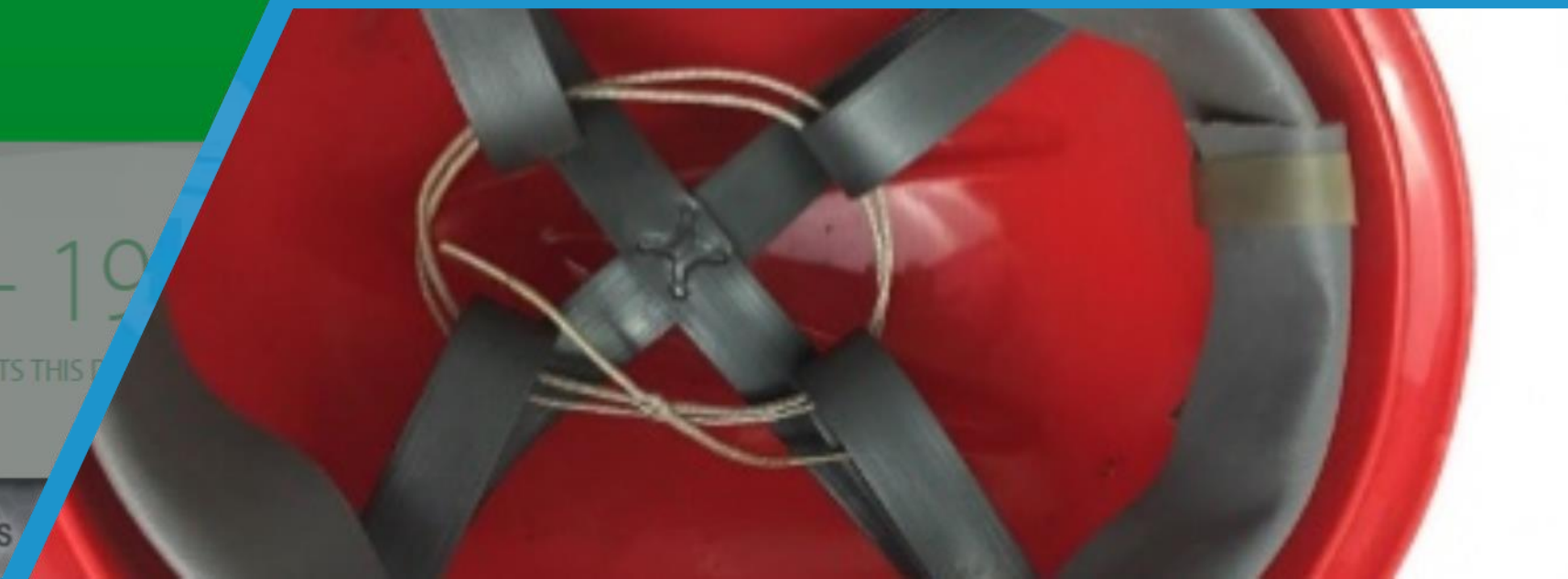
In 1961, the Topgard® Helmet was introduced, which was the first polycarbonate hardhat. Polycarbonate is an extremely durable plastic that is very difficult to crack or break. A year later in 1962, the V-Gard® Helmet launched. Today, both helme are part of the family of "best-selling helmets."

1960s
Gas Masks for the military
MORE INFO

1960 - 19

VIEW ALL EVENTS THIS

20s 1930s 1940s 1950s 1960s 1970s 1980s



OSHA Requirements

- **Part Number:** 1926
- **Part Number Title:** Safety and Health Regulations for Construction
- **Subpart:** 1926 Subpart E
- **Subpart Title:** Personal Protective and Life Saving Equipment
- **Standard Number:** 1926.100
- **Title:** Head protection.

- 1926.100(b)(1)(i)American National Standards Institute (ANSI) Z89.1- 2014, "American National Standard for Industrial Head Protection," incorporated by reference in §1926.6;

- 1926.100(b)(3)OSHA will deem any head protection device that the employer demonstrates is at least as effective as a head protection device constructed in accordance with one of the consensus standards identified in paragraph (b)(1) of this section to be in compliance with the requirements of this section.

What Technical and Performance Standards do Helmets Meet?

Head Protection Safety Standards Worldwide

EUROPE
EN 397 / EN 12492 / EN 14052

USA / CANADA
ANSI Z89.1 / CSA Z94.1

AUSTRALIA / NZ
AS/NZS 1801

ANSI Z89.1 Type 1 and II

- **ANSI Z89.1 TYPE I** helmets are tested for:
  - Top impact absorption
  - Penetration resistance
  - Flame resistance
  - Electrical classification requirements (Conductive, General, Electrical)

- **ANSI Z89.1 TYPE II-** pass Type I tests **and** additional tests for:
  - Lateral impact
  - Lateral penetration
  - Impact Attenuation
  - Chin strap requirements (if applicable*), and
  - Low/high temperature operating range

- It is important to note that an ANSI Type II helmet can be sold without a chin strap.
  A chin strap could be added as an accessory after purchase and not be subjected to any testing.

NIOSH Study Breakdown

TABLE III. Number and Rate of Fatal TBIs per 100,000 FTE Workers in the Construction Industry by Age and Event Type—US, 2003–2010

	Contact with objects and equipment		Falls		Transportation incidents		Other[a]	
Age group (in years)	n (%)	Rate	n (%)	Rate	n (%)	Rate	n (%)	Rate
16–19	—	0.9	38 (51)	2.3	20 (27)	1.2	—	0.1
20–24	46 (24)	0.6	99 (52)	1.3	39 (20)	0.5	8 (4)	0.1
25–34	95 (21)	0.4	247 (54)	1.1	107 (23)	0.5	11 (2)	0.1
35–44	92 (18)	0.4	299 (58)	1.3	101 (20)	0.4	22 (4)	0.1
45–54	62 (12)	0.3	315 (59)	1.6	114 (21)	0.6	47 (9)	0.2
55–64	40 (14)	0.5	183 (62)	2.1	57 (19)	0.7	16 (5)	0.2
65 and older	—	0.8	88 (65)	5.2	25 (19)	1.5	—	0.5
Total	363 (16)	0.4	1269 (57)	1.5	463 (21)	0.6	115 (5)	0.1

- 1269 (67%) Fatalities from FALLS!
- 388 (24%) fell from roofs
- 301 (24%) fell from ladders
- 212 (17%) fell from scaffolds/staging
- 25 employees fell and died from the same walking/working surface
- Small contractors(<20), foreign born, older workers > risk

OSHA Statistics

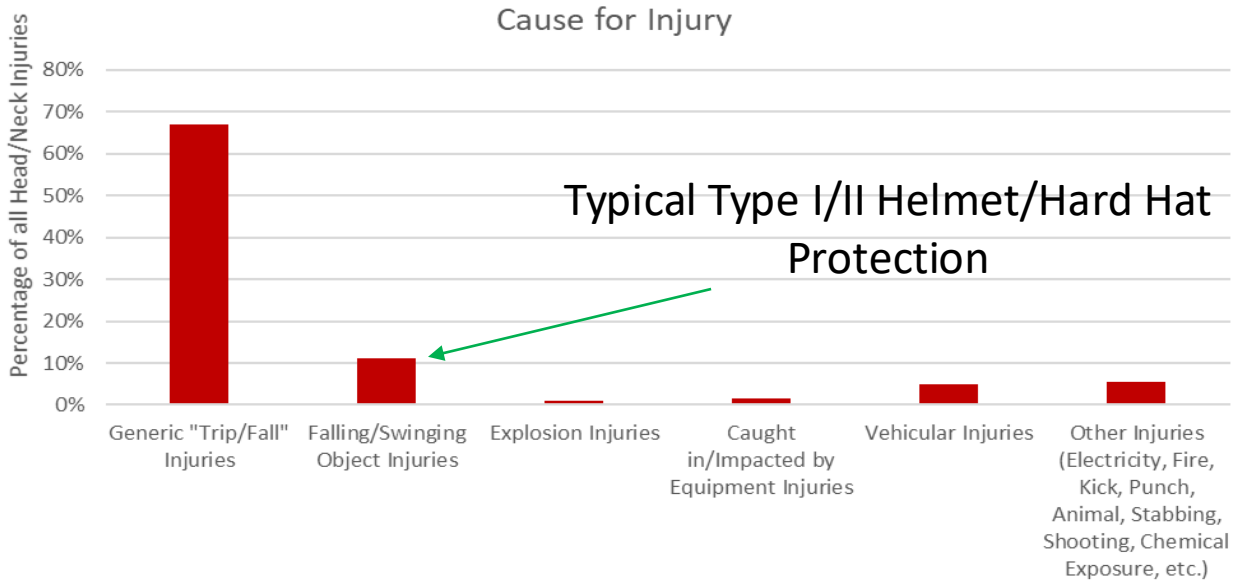
1883 Reported Head/Neck Injuries

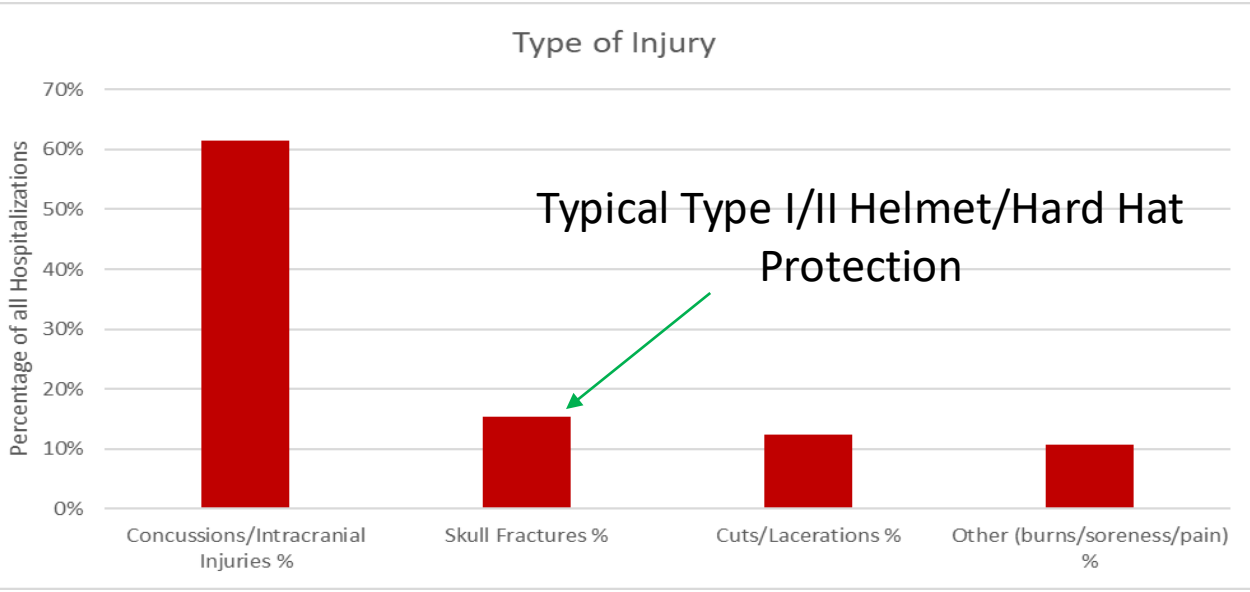
- ~10% of injuries caused by falling objects
  - Typically results in Skull Fracture only
  - ANSI Type I/II designed for these impacts
- ~65% of injuries caused by slip/trip/fall
  - 6x more likely than falling object injury
  - Typically results in Concussion only
  - No comprehensive regulations for these impacts

Concussion Injuries

- 6x more frequent than skull fracture
- No regulations to protect from this type of injury

OSHA Injury Data (1/1/2015 - 3/31/2018) Hospitalized Cases Only





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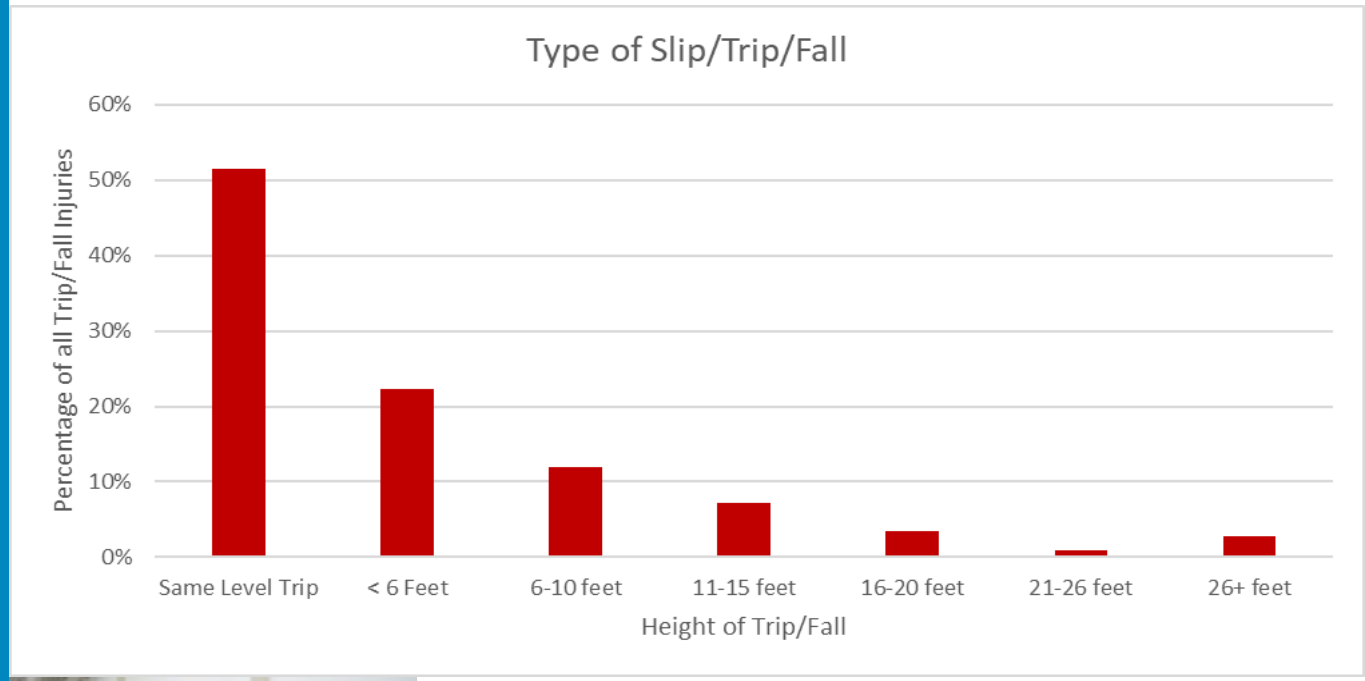
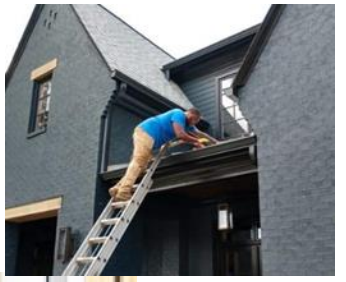
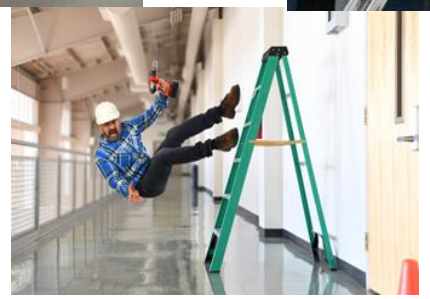
Slip/Trip/Fall

- < 6ft Slip/Trip/Fall
  - ~75% of all injuries
- 6-15ft Fall
  - ~20% of all injuries
- > 15ft Fall
  - ~5% of all injuries







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Fatal/Nonfatal Rates

BLS Data 2020

- Head Injury Rates per 10,000 workers

BLS Data 2011 to 2021

- Approximately 38.7% of fatal falls to lower levels resulted in intracranial injuries.
- 52.5% of the fatal falls to a lower level occurred due to falls from structures and surfaces, with construction and occupations accounting for 51.4% of those falls.
- Construction occupations account for 19.2% of nonfatal falls to a lower level.

Fatal/nonfatal head injuries and injury rates for the 10 largest construction and extraction occupations in the U.S., 2020.

Occupation	Employment	Fatal injuries	Fatal injury rate	Nonfatal injuries	Nonfatal injury rate
Construction laborers	971,330	308	1.81	16,590	207.1
Carpenters	699,300	79	0.78	11,960	202.7
Electricians	656,510	70	0.80	7,270	[illegible]
Frontline supervisors of construction trades and extraction workers	614,080	88	1.17	5,090	93.50
Plumbers, pipefitters and steamfitters	417,440	25	0.52	6,520	187.9
Operating engineers and other construction equipment operators	402,870	56	1.72	2,450	85.90
Painters, construction and maintenance	217,880	53	1.16	1,600	89.90
Cement masons and concrete finishers	195,580	7	1.30	950	57
Highway maintenance workers	149,890	15	1.60	90	118.6
Roofers	128,680	88	4.70	1,960	185.6
Total	**4,453,560**	**789**	[illegible]	**54,480**	[illegible]

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Helmet Design and Testing

Expanded Polystyrene (EPS)

- First Law of thermodynamics (Law of Conservation of Energy) states that energy can neither be created nor destroyed; energy can only be transferred or changed from one form to another.

- Energy from impact involving EPS is absorbed during the crushing of foam creating heat and limiting energy from reaching the head/brain.

Helmet Testing

Force Transmission

Apex Penetration

Impact Attenuation

Head Protection Materials

Outer and inner shell materials for various forms of head protection.

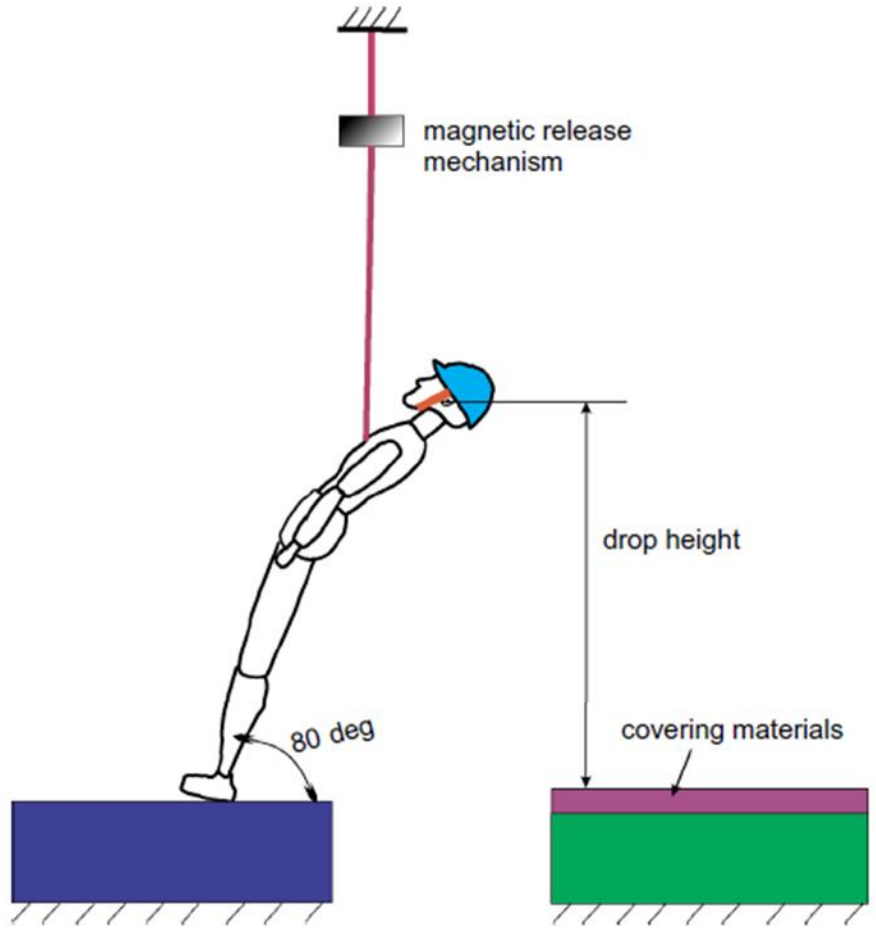
Type of head protection	Outer shell material	Inner shell material
Old hard hat	High density polyethylene (HDPE)/polycarbonate resin	Molded HDPE, nylon straps
Construction safety helmet	High density polypropylene (lighter and more resistant to high temperatures than HDPE)	High density expanded polystyrene
Bicycle	Polycarbonate	Polystyrene foam
NASCAR	Carbon composite, glass, Kevlar	Polystyrene/polypropylene
Football	Polycarbonate	Vinyl nitrile, expanded polypropylene substructure, foam and air liner; thermoplastic polyurethane (TPU)
Military	Kevlar	Polyurethane foam

Helmet Effectiveness

- Evaluation of the Fall Protection of Type I Industrial Helmets (1)
  - Without a hard hat or helmet – 100% probability of serious head injury
  - With a traditional hard hat ~ 65% probability of a serious head injury
  - With a helmet ~ 25% probability of a serious head injury
  - Note: In the automotive industry < 50% is the generally accepted permissible limit

1 published online 5 February 2022

BMES BIOMEDICAL ENGINEERING SOCIETY



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Hard Hat vs. Safety Helmet

HARD HAT

- Standard hard hats are 60-year-old technology
- Complying with ANSI Z89.1 (top impact and top penetration)
- When falling, a hard hat will fall off your head.
- **Designed just for falling objects**
- **5 years shelf life**
- No chinstrap and no additional lining
- Overall fit hinders movements
- Few and limited accessories
- Warranty: 1 year

SAFETY HELMET

- **EPS foam all over the shell absorbs and dissipates the impact**
- **Complying with ANSI Z89.1/2015** (top impact and top penetration) **AND additional side, rear and front impact** according to mountaineering standard EN 12492 or ANSI TYPE II (with strap)
- **Stays on your head during a slip, trip, or fall.**
- **Designed for Fall Protection & Heavy Impact**
- **10 years shelf life**
- Wide collection of accessories
- Warranty: 3-5 years

Why Should I make the Change?

Safety Helmet Initiative

For **ASCC, MCAA and it's member companies** and for our Industry:

- This is about **saving lives**.
- We're trying to connect all the different pieces of a solution to provide the industry a **much better** solution.
- We want to share our vision, and hope you feel passionate about being part of this.

Safety Helmet Initiative: Objectives

1. *Ensure a significantly lower cost solution available in the U.S. Market.*
   - Meets ANSI Type I requirements
   - Meets performance requirements of EN 12492 and/or ANSI Type II
   - $30-$40 target- Current market range $60-$100+
2. *Start saving lives*: Work with manufacturers to ensure there is supply to all interested parties. Target industry organizations, industrial clients, and major general contractors to create a trickle-down affect to their specialty contractors.
3. *Lobby for Change*: With lower cost solutions, we can push for change to Standards and OSHA requirements without a negative impact to the industry.
4. *Watch the Market Adapt*: With growing interest and changing requirements, other manufactures will bring solutions to the table. Product innovation and cost reduction will follow.

OSHA Announcement

OSHA Trade Release

U.S. Department of Labor
Occupational Safety and Health Administration
Office of Communications
Washington, D.C.
www.osha.gov
For Immediate Release

December 11, 2023
Contact: Office of Communications
Phone: 202-693-1999

OSHA announces switch from traditional hard hats to safety helmets to protect agency employees from head injuries better

WASHINGTON – The U.S. Department of Labor's Occupational Safety and Health Administration announced that the agency is replacing traditional hard hats used by its employees with more modern safety helmets to protect them better when they are on inspection sites.

In 2020, the Bureau of Labor Statistics reports head injuries accounted for nearly 6 percent of non-fatal occupational injuries involving days away from work. Almost half of those injuries occurred when workers came in contact with an object or equipment while about 20 percent were caused by slips, trips and falls.

Dating back to the 1960s, traditional hard hats protect the top of a worker's head but have minimal side impact protection and also lack chin straps. Without the straps, tradition hard hats can fall off a worker's head if they slip or trip, leaving them unprotected. In addition, traditional hard hats lacked vents and trapped heat inside.

On Nov. 22, 2023, OSHA published a Safety and Health Information Bulletin detailing key differences between traditional hard hats and more modern safety helmets and the advancements in design, materials and other features that help protect workers' entire heads better. Today's safety helmets may also offer face shields or goggles to protect against projectiles, dust and chemical splashes. Others offer built-in hearing protection and/or communication systems to enable clear communication in noisy environments.

The agency recommends safety helmets be used by people working at construction industry and the oil and gas industry; in high-temperature, specialized work and low-risk environments; performing tasks involving electrical work and working from heights; and when required by regulations or industry standards.

OSHA wants employers to make safety and health a core value in their workplaces and is committed to doing the same by leading by example and embracing the evolution of head protection.

Regulatory Update

ISEA Head Protection Committee Recommendations

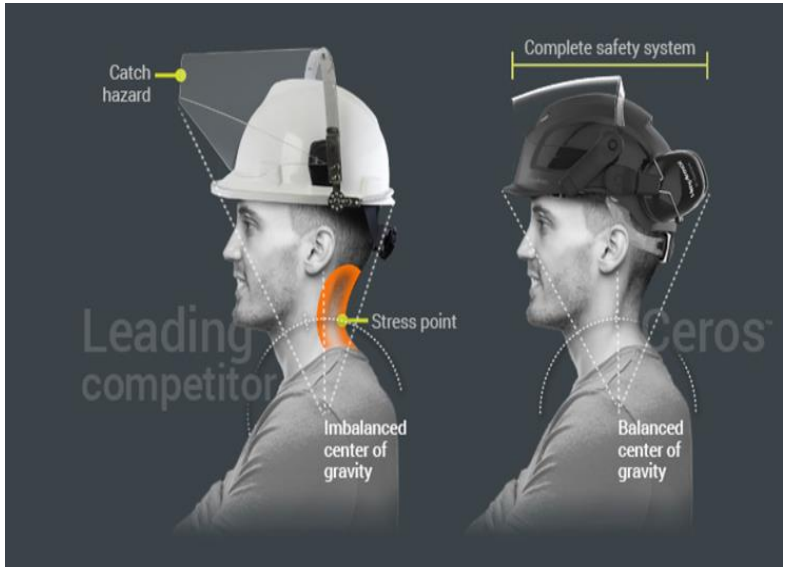
- Developing “+” Designation
- Will include side/back/front impact requirements
- Will include helmet retention system (chin strap)
- Available for Type I and Type II for Class E,C or G

Common Misconceptions or Objections

Helmet Comfort and Fit

Weight – hard hat 14 oz ~400 grams

Helmets ~450-500 grams



"I love it! It's much more comfortable than the old hard hat" – Dave

"It feels a lot lighter on your head" – Steve

"The upgraded suspension really feels secure, and I really like how it adjusts to my head" – Ross

Aren't they hotter?

Head Protection Temperature Study

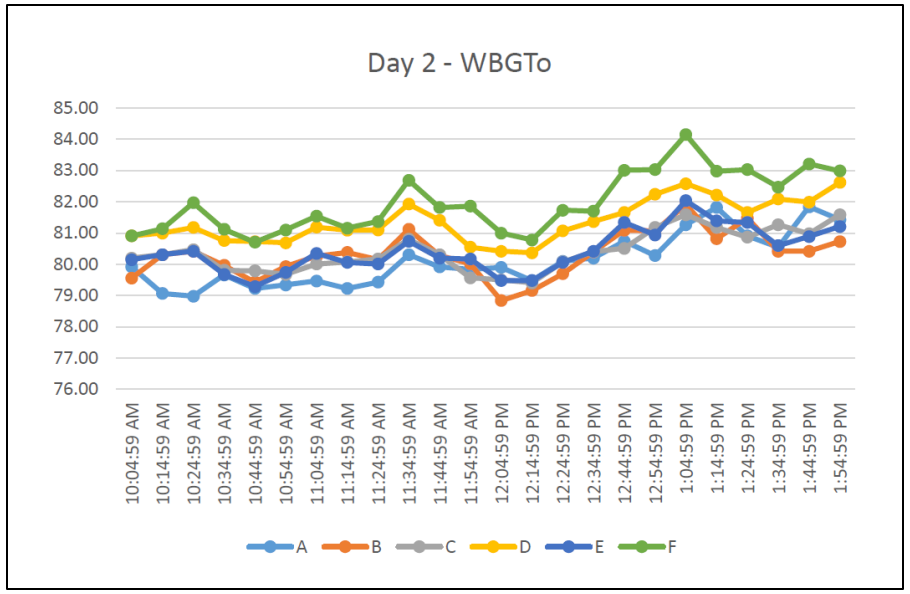
Georgia Tech Enterprise Innovation Institute: Safety, Health and Environmental Services Group

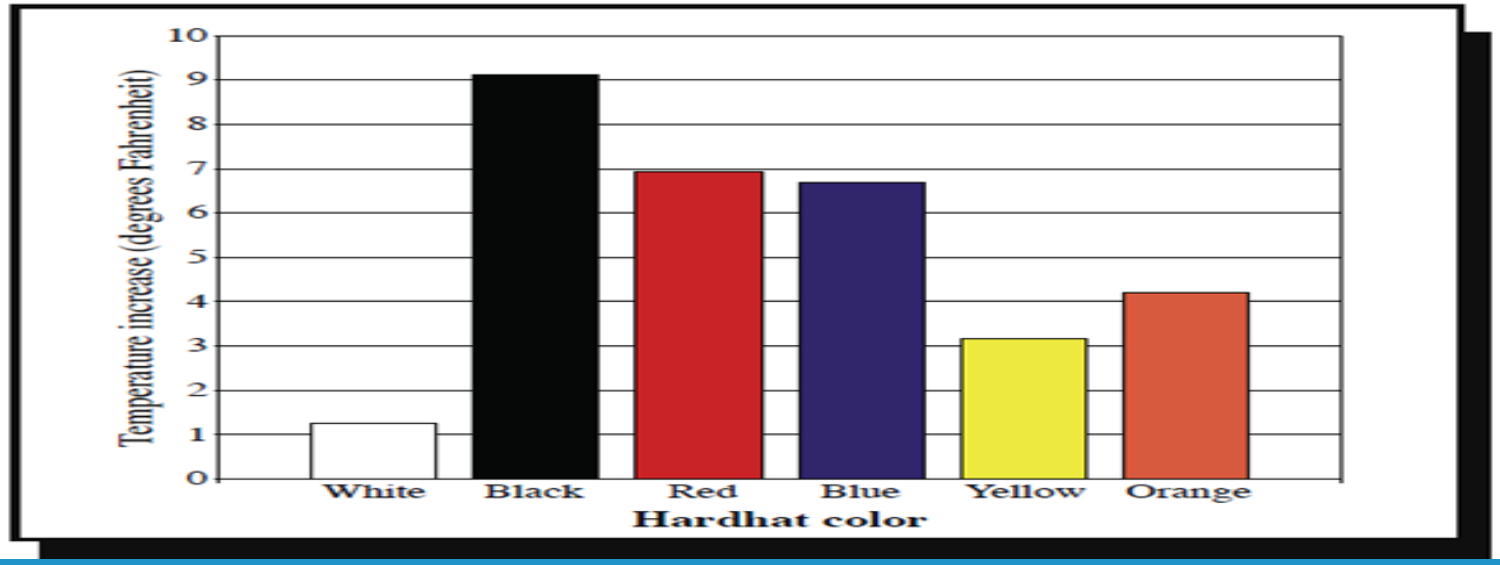
- Testing Protocol
  - Six Quest Temp 34 Heat Stress monitors (WBGT)
  - Six different head protection models
    - 4 helmets
    - 2 hard hats
    - Sponge saturated with 50 mL of water to simulate perspiration and water loss was measured at the end of each testing cycle.
    -
  - Internal and external temp. measured over 3-day period

Temperature Study Cont.

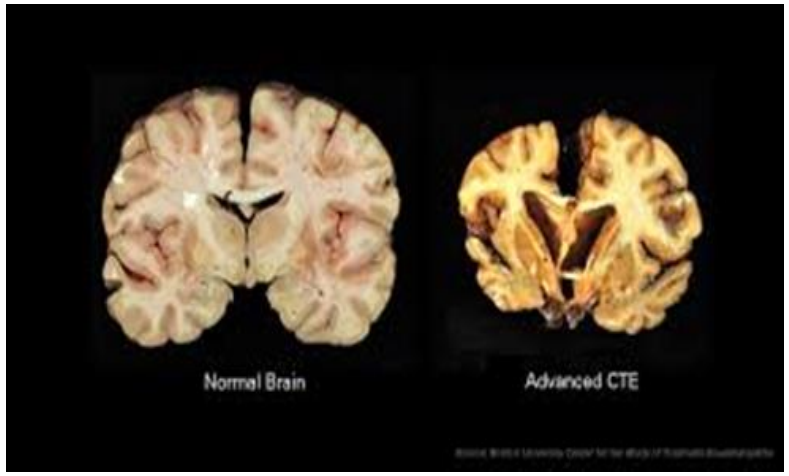
- Results

Average Ambient WBGTo - Control	Average External Surface of HH/Helmets	Average Globe – Under HH/Helmets	Average Dry - Under HH/Helmets	Average WBGTo - Under HH/Helmets	Average Grams Water Loss
86.3 °F – 87 °F	89.9 °F – 94.7 °F	89.2 °F – 93.4 °F	87.6 °F – 89.4 °F	79.8 °F – 81.6 °F	20.8 g - 32.8 g

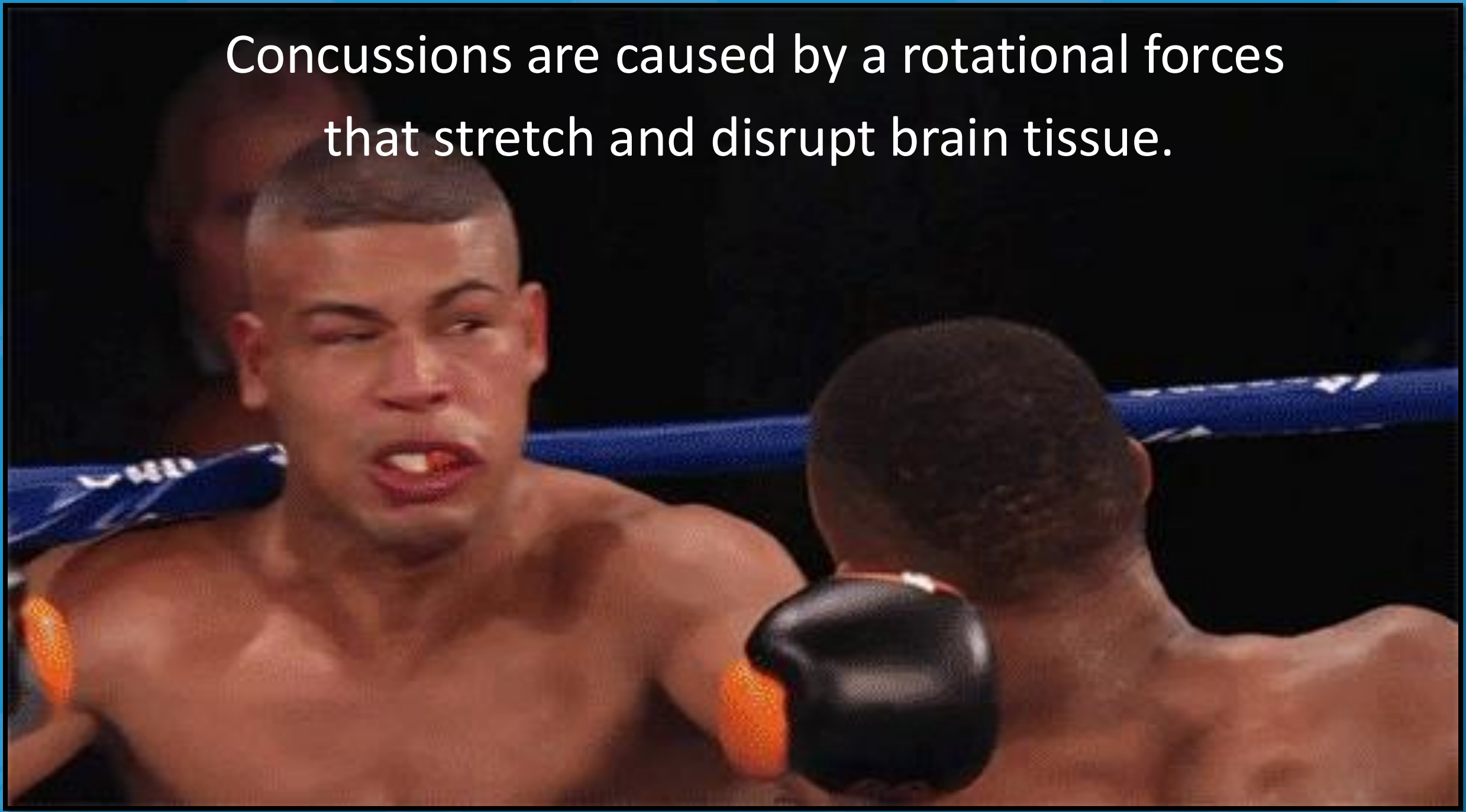




Leveraged Innovation



Concussions are caused by a rotational forces that stretch and disrupt brain tissue.

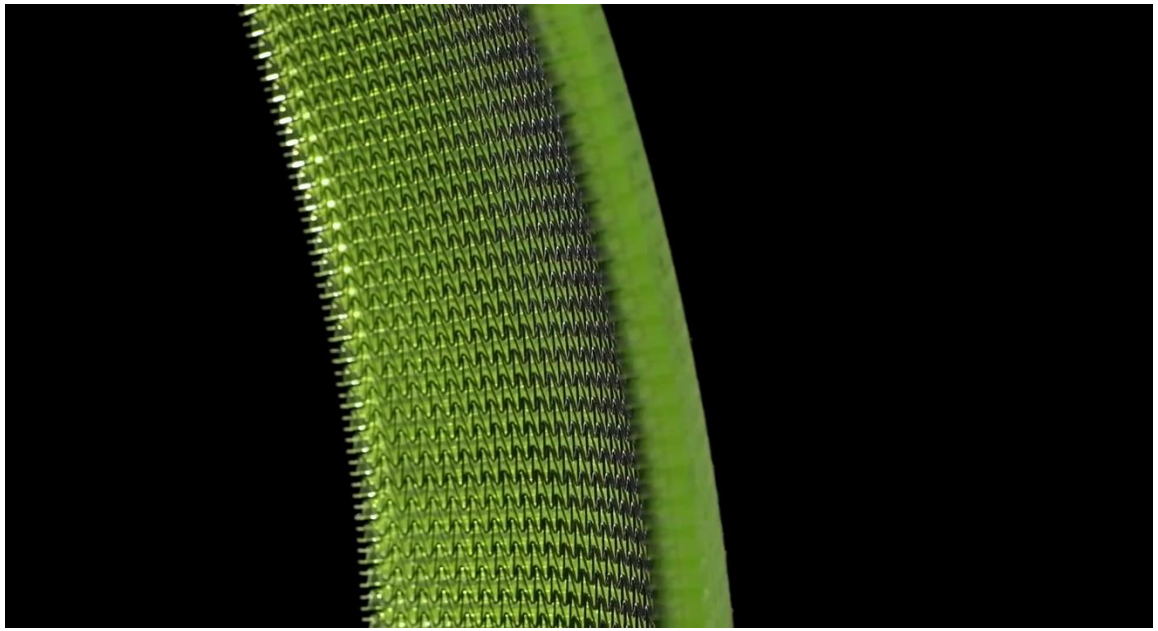


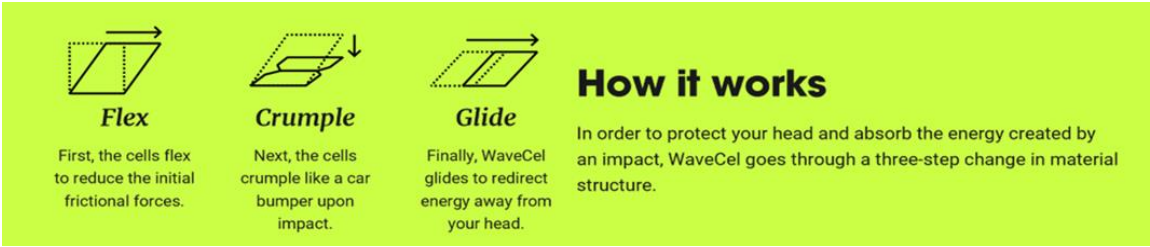
MIPS Technology

- Multi-Directional Impact Protection System
- Reduces rotational forces caused by angled impacts to the head.
- A helmet's shell and liner are separated by a low friction layer which allows the helmet to slide, noticeably reducing trauma to the brain in the case of oblique impacts.
- MIPS layer is located between the liner and the user's head.

Energy Absorbing Cell Technology

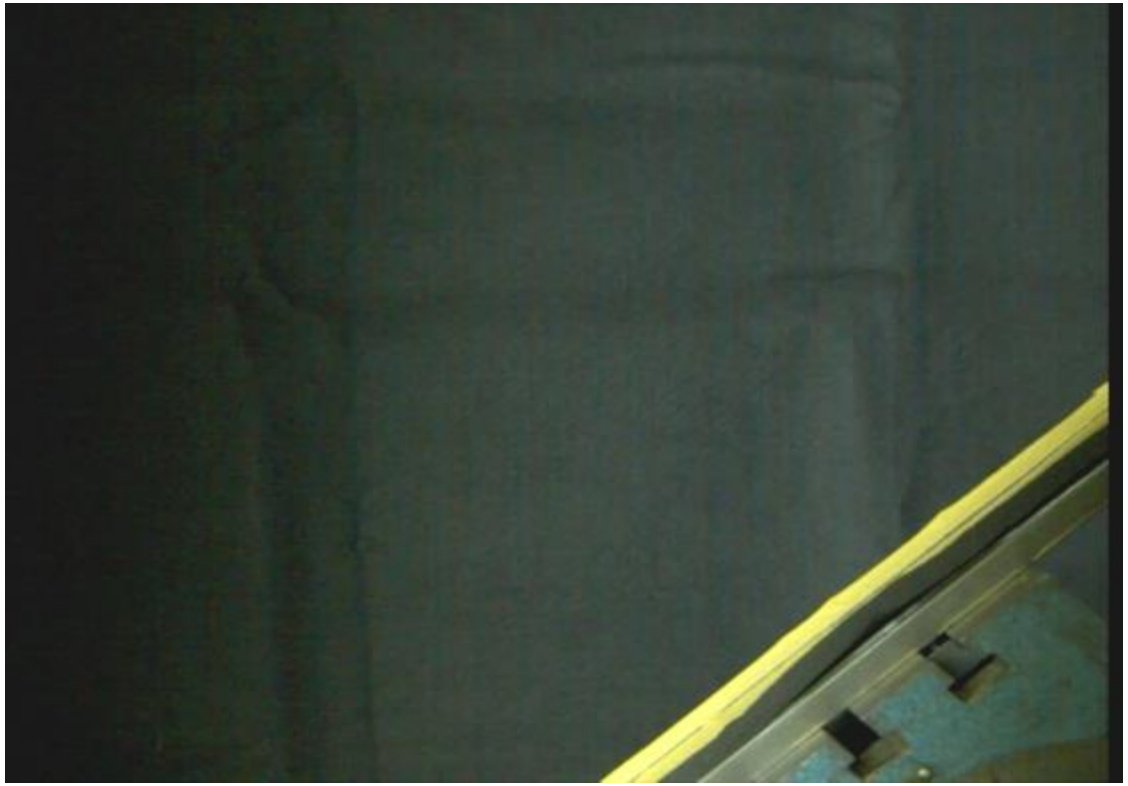
- A collapsible cellular structure that lines the inside of a helmet.
- It works like a crumple zone that absorbs the force of an impact before it reaches your head



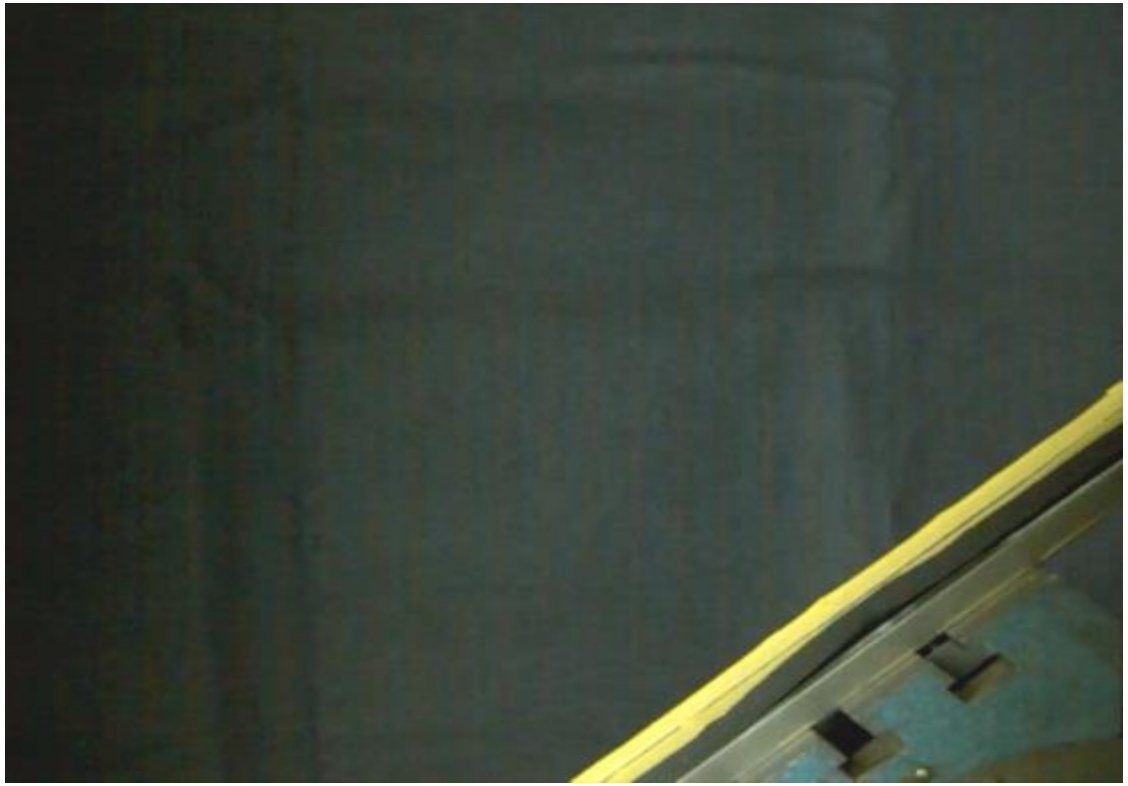


Energy Absorbing Cell Technology

Standard Helmet



Cell Type Helmet



VIRGINIA TECH

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Development and Implementation of a Rating Scheme for Hard Hats and Safety Helmets

Steve Rowson, PhD

Associate Professor

Virginia Tech Helmet Lab

Virginia Tech Helmet Lab

We are an **injury biomechanics** research lab

We have **extensive experience developing methodologies that evaluate protective headgear** under real-world loading conditions

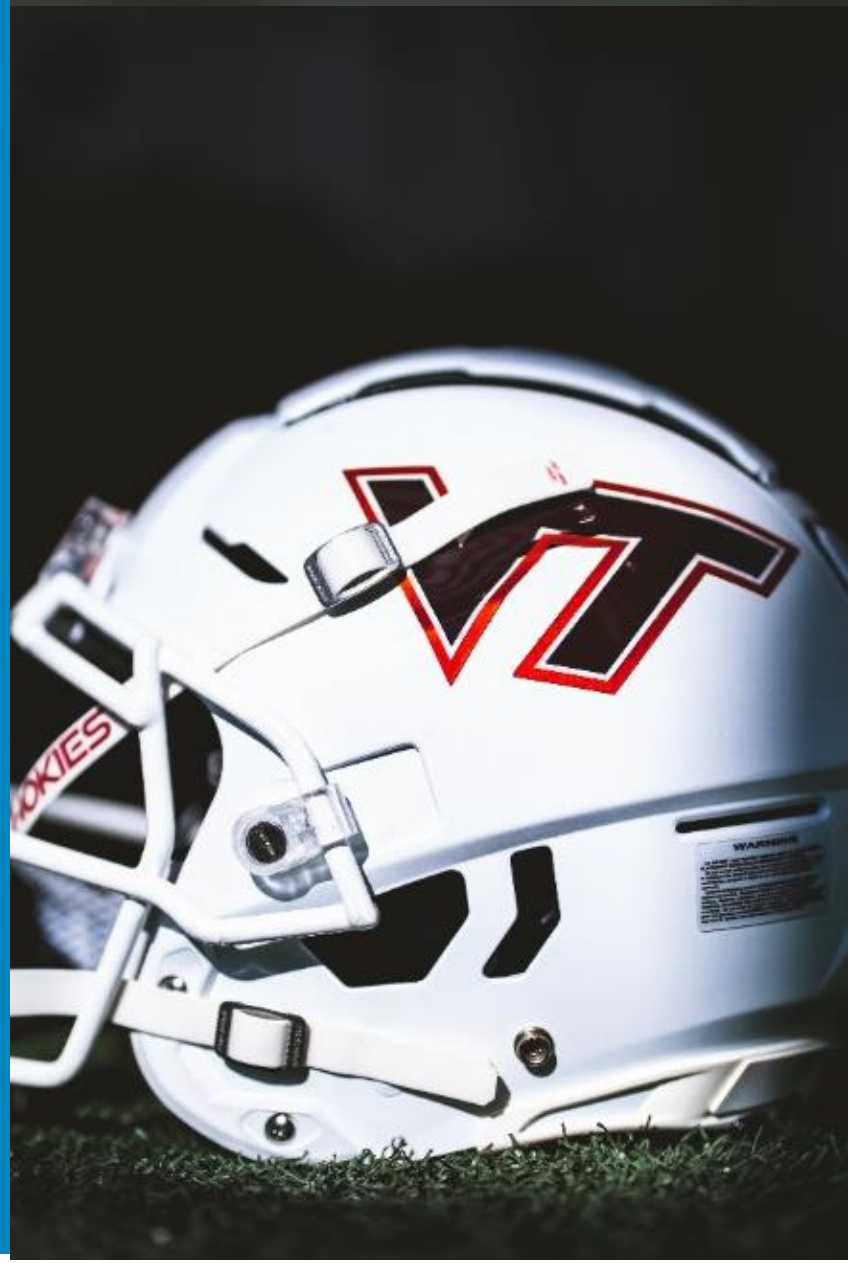
We **disseminate complex test results through overall ratings** representative of expected injury incidence rates

Virginia Tech Helmet Ratings

The helmet ratings program has 2 primary objectives:

1. To **inform consumers and stakeholders** of relative head injury risk differences between helmets
2. Provide manufacturers with a **design tool** to optimize helmet design to best reduce injury risk in the real world

vt.edu/helmet



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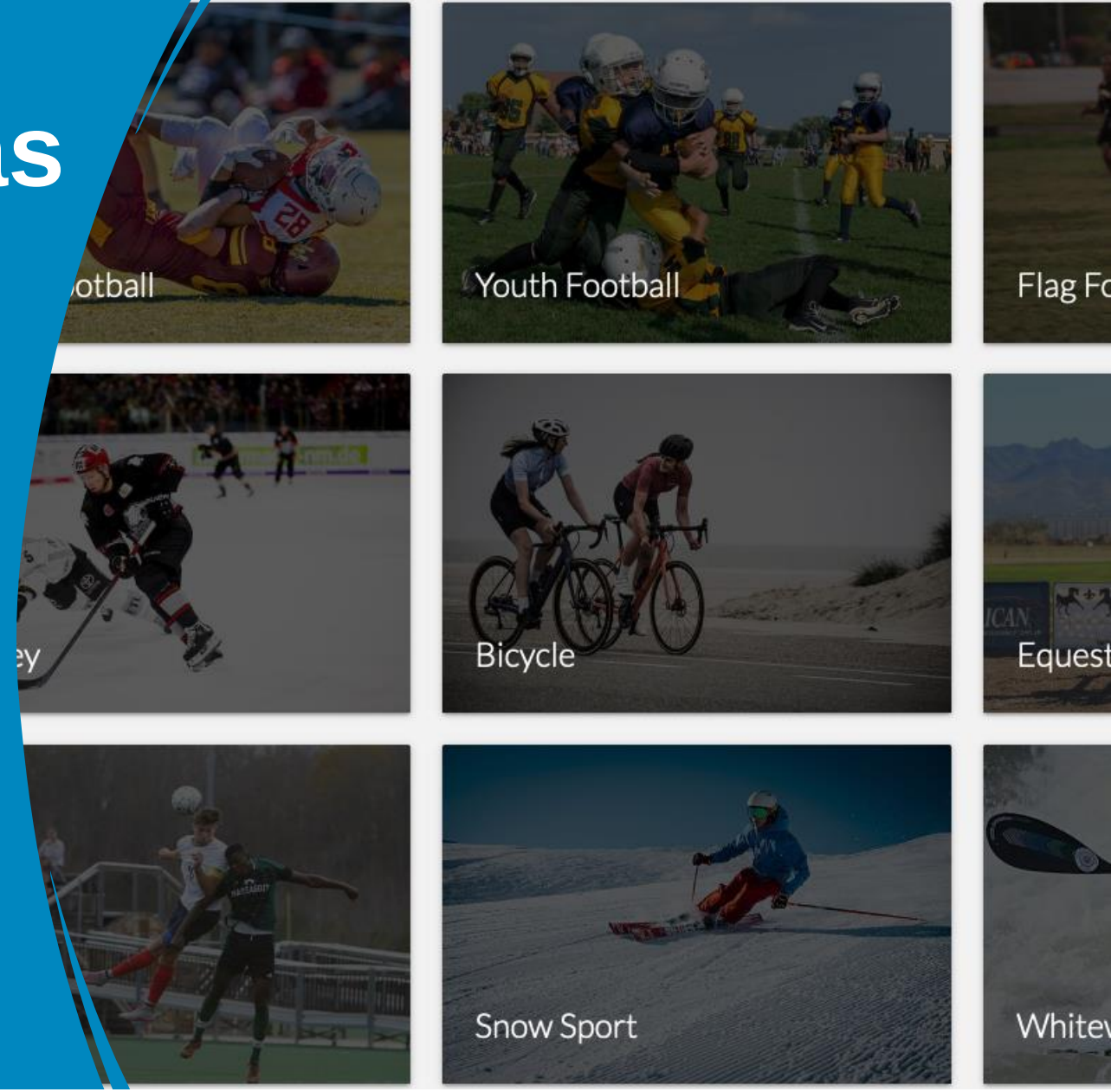
Helmet Ratings Areas

Developed state-of-the-art test methods for a range of sports based on real-world research

Aim to expand ratings to include occupational head protection

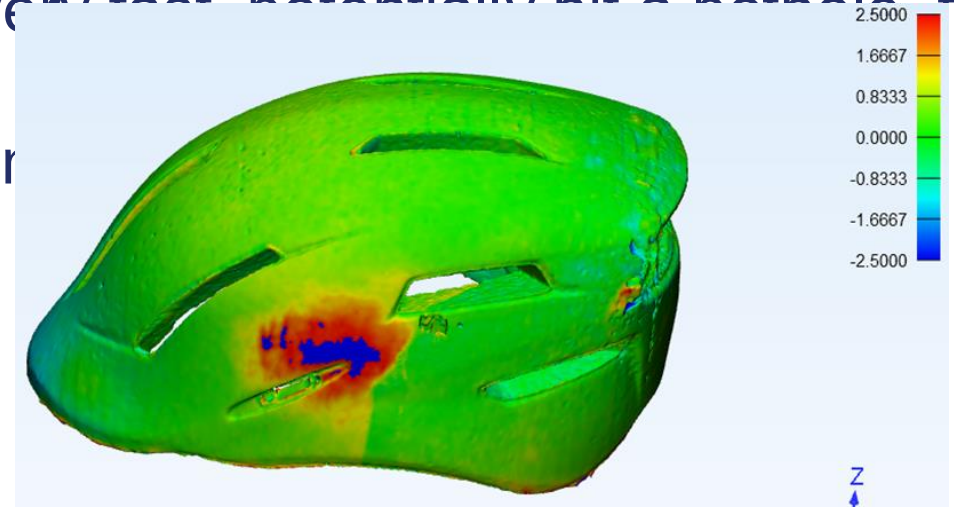


Example:
Bicycle helmet

Damage reconstruction

Real-world head impact characterization

- Ac[illegible] fell off bik
- Im[illegible]ner



- Helmet surface: large scrapes (~4-5 cm long) and slightly pockmarked anterior to max crush
- Max crush: 3.9 mm temporal / parietal left

Evaluating bicycle helmets

- Oblique impact rig with 45 degree anvil
  - Sandpaper coated (80 grit)
- NOCSAE headform w/ 6DOF instrumentation package
- No neck – head support ring and level arm control head during drop
- Velocity light gate

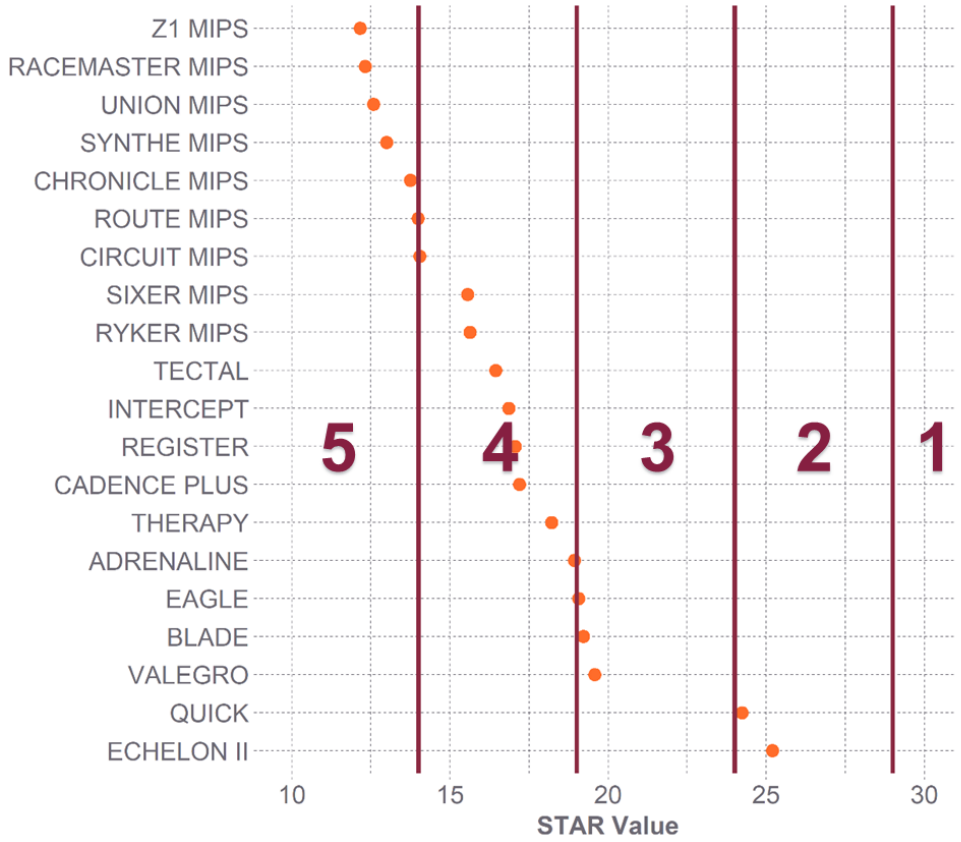
Example bike helmet test

Bicycle STAR: exposure, locations

- Equal weighting for all locations (1-time events)
- Six impact locations
  - 1 and 4 at the helmet rim
  - Commonly impacted in accidents
  - Minimum spacing 12 cm

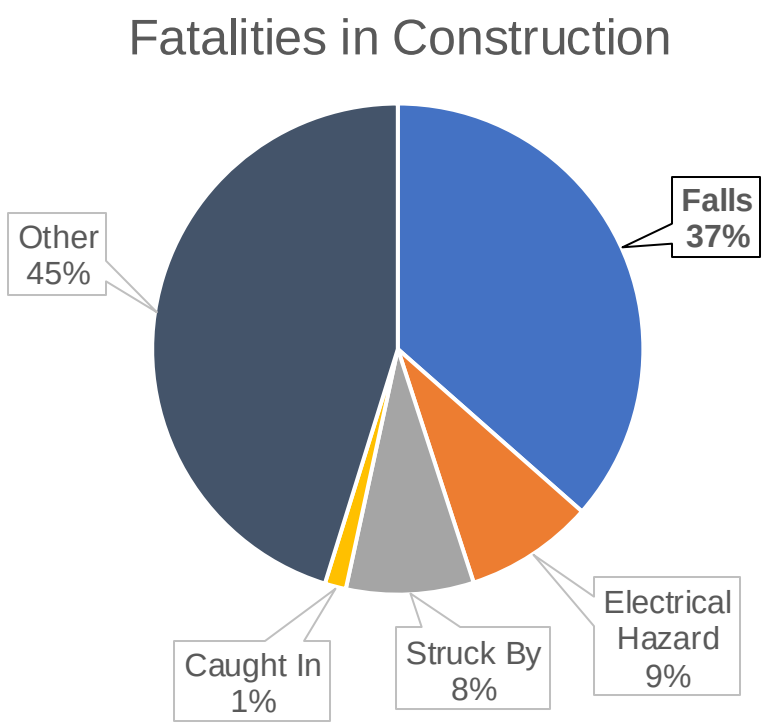
$$STAR = \sum_{L=1}^{6} \sum_{V=1}^{2} E(L,V) \cdot R(A,\omega)$$

Bike helmet ratings



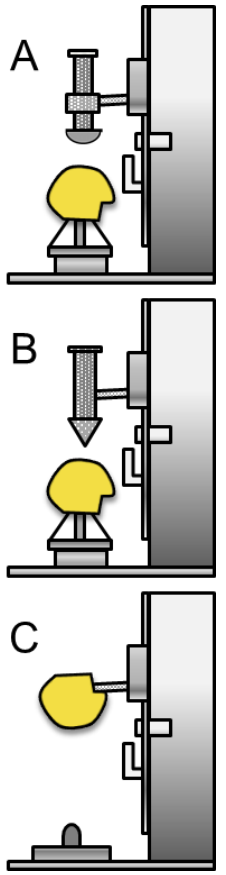
Falls in industrial settings

- Falls are the leading cause of fatalities and non-fatal TBIs in the construction industry
- Safety helmet standards testing are performed at too low of energies to be representative of falls
  - Bicycle: 96 J
  - Equestrian: 88 J
  - Mountaineering: 98 J
  - **Safety helmets: 31 J**



Industrial head protection standard: ANSI Z89.1

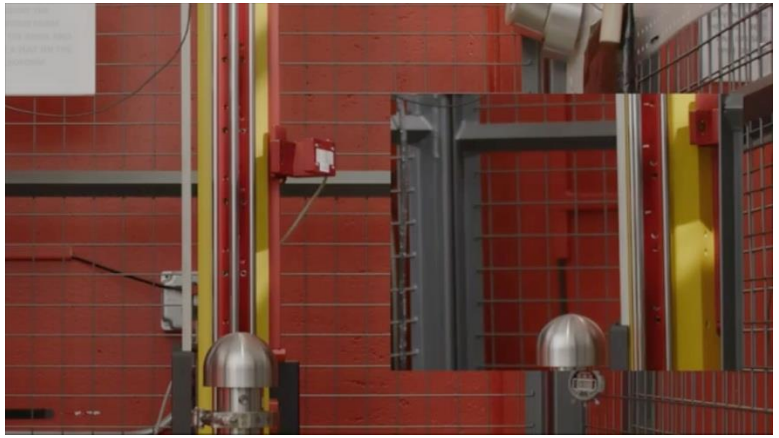
Type I	Type II
Flammability	Flammability
Force transmission (Fig. A)	Force transmission (Fig. A)
Apex penetration (Fig. B)	Apex penetration (Fig. B)
	Impact energy attenuation (Fig. C)
	Off-center apex penetration
	Chin strap retention



Industrial head protection standard: ANSI Z89.1

Force transmission

Apex penetration



Impact energy

https://www.hardhatstohelmets.org

Project objectives

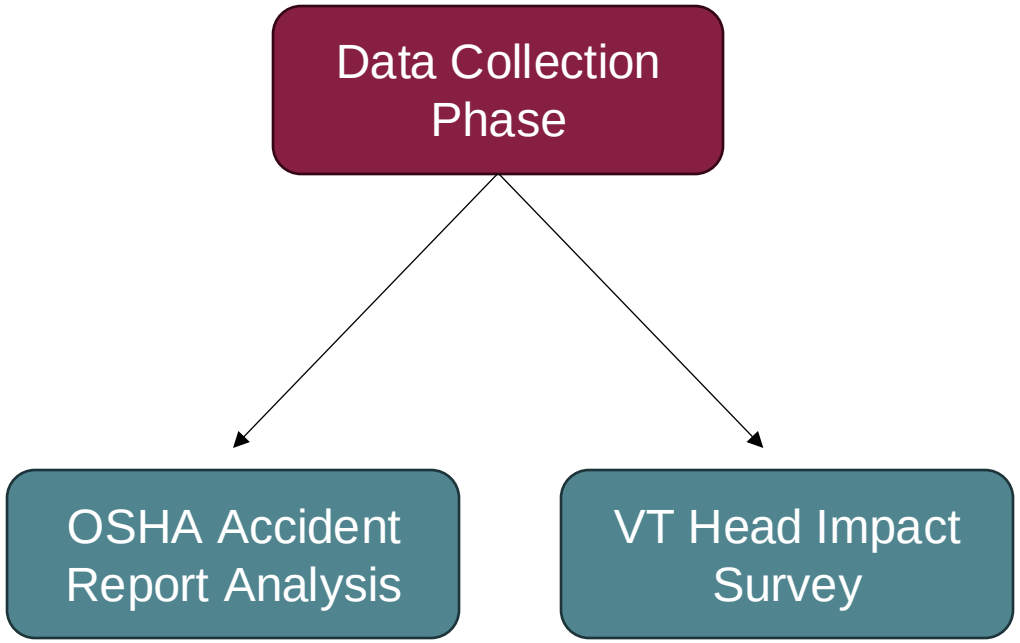
1. Conduct **background research** to identify common head injury scenarios in industrial settings

2. Develop a laboratory system to accurately **replicate real-world head impacts**

3. Create an **industrial-specific rating system** to compare safety helmet models

Objective 1

- Multiple approaches to determine which impacts to represent during the final rating system
- **OSHA accident reports**
  - Large public database giving short descriptions of workplace accidents
  - Some information on fall height, fall surface, and injuries sustained
- **VT Head Impact Survey**
  - Survey with more detailed questions
  - More accurately recreate head impacts in a laboratory setting



Objective 1

Characterize the conditions associated with head impacts in construction through analysis of accident reports and surveillance video

Accident: 70705.015 - Demolition Worker Falls From Stepladder And Fractures Skull.

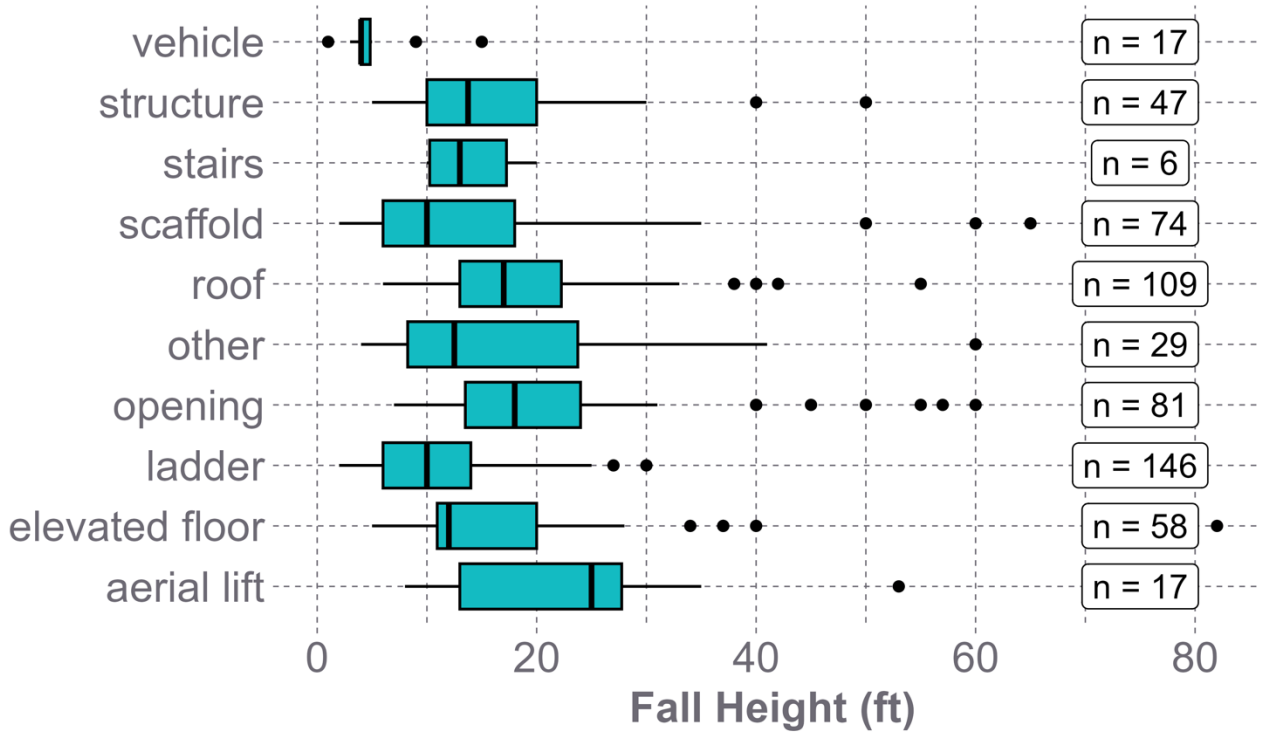
Accident: 70705.015 -- Report ID: 0950614 -- Event Date: 01/27/2015			
Inspection	**Open Date**	**SIC**	**Establishment Name**
1026173.015	01/28/2015		[redacted]
At 10:00 a.m. on January 27, 2015, Employee #1, employed by a construction contractor, was engaged in interior demolition work at a multifamily residential building as part of a multiemployer construction project. He was standing on a 10-foot stepladder and demolishing existing drywall. Employee #1 fell from the stepladder to the floor, a fall height of approximately 6 feet. Emergency services were called, and Employee #1 was transported to the hospital. He was admitted and treated for a fractured skull. Employee #1 spent several weeks in the hospital's Intensive Care Unit. The subsequent investigation determined that Employee #1 had not received training and had overreached while working from the ladder.			
Keywords: skull, demolition, fall, fracture, ladder, fall protection, construction, wall, stepladder, untrained			

We are analyzing the impact energies, impact locations, head orientations of real-world head injuries

Objective 1

OSHA accident reports

- Date range: 1/1/2009-9/25/2024
- Search terms: “fall and concussion” or “fall and skull” or “fall and brain”
- NAICS Job Codes
  - 236 – construction of buildings
  - 237 – heavy and civil
  - 238 – specialty contractors
- **Over 600 analyzed reports**



Objective 1

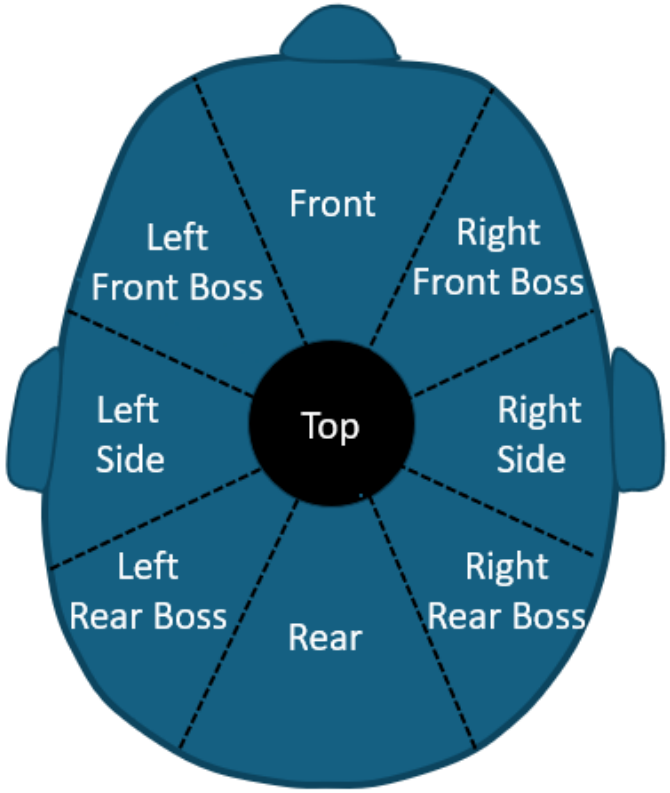
Collecting worker survey, company reports, and video of accidents with head impact

- Information and files shared with us would be confidential and not shared in any way outside our research team.
  - Process governed by our institutional review board.
- Information and shared files will be completely de-identified. We don't need or want: who it is, who they work for, or where it happened.
- Only the research team will handle information shared by companies. Files will be stored on a password-protected computer.
  - Shared files will be destroyed at the end of the project.
  - Publication of results will not discuss any individual injury event. Only summaries of the analysis as a whole will be reported on.

Objective 1

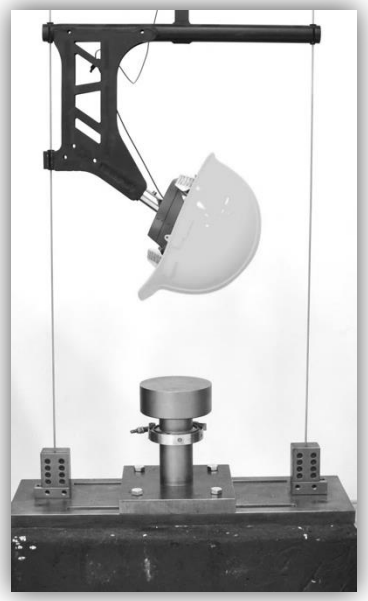
Industrial head impact survey

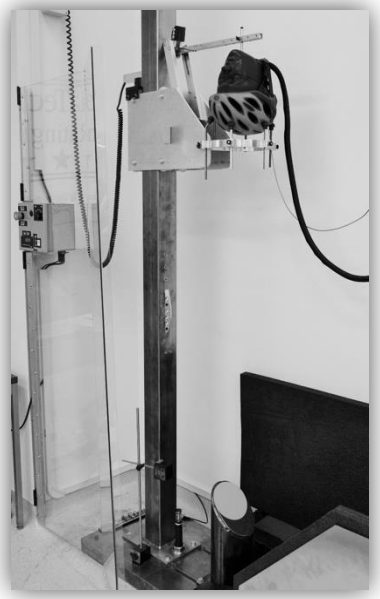
- IRB approved (VT IRB 24-972)
- Questions pertaining to:
  - Head impact event
  - Head impact location
  - Fall surface
  - Fall height
  - Protective equipment worn
  - Injuries sustained
- Opportunity for follow-up phone interview



Objective 2

Generalize the real-world loading conditions observed in the reconstructions to controlled laboratory test systems



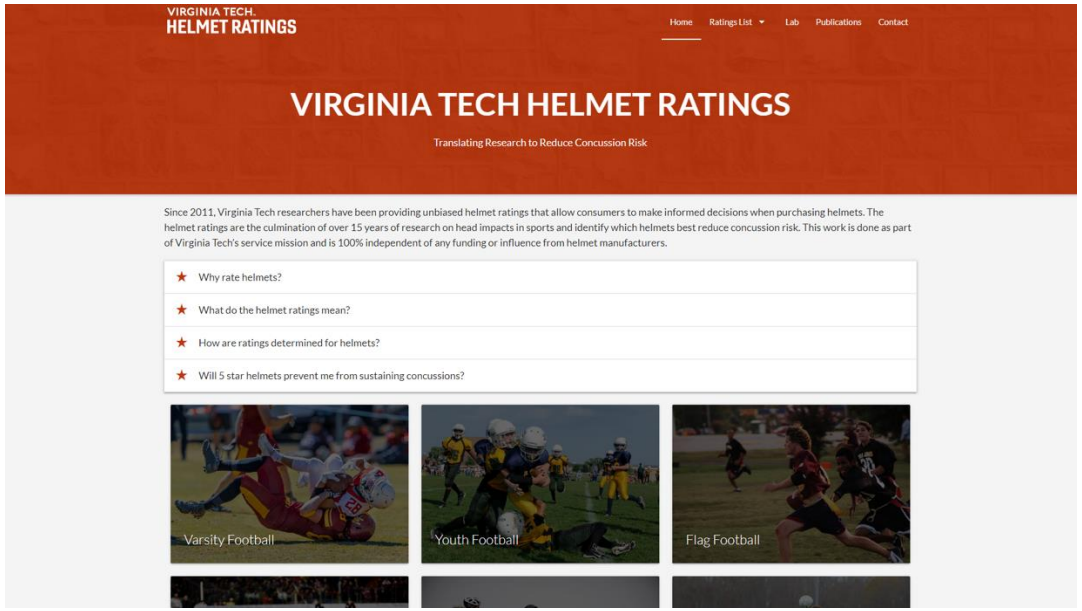


Impacts will consider linear and rotational head acceleration

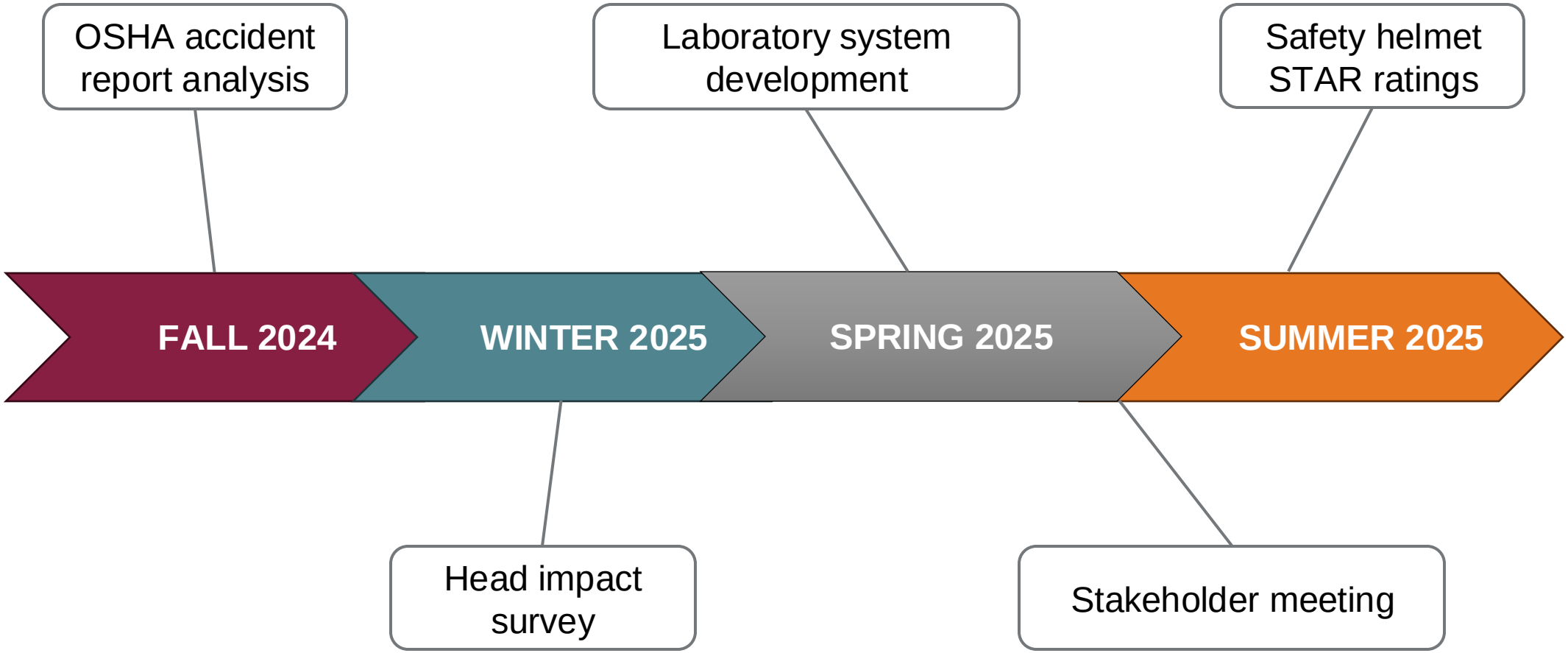
Objectives 3 and 4

3. Develop and implement a comprehensive rating scheme for occupational head protection representative of real-world injury risk

4. Test currently available occupational head protection and publicly release data on our helmet rating website



Project Timeline



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HOME WHY HELMETS? HELMET STORIES RESOURCES

Hardhats to Helmets

Traumatic Brain Injuries are responsible for 25% of all construction fatalities, and many life-altering injuries.

MAKE THE TRANSITION

- REGULATORY REQUIREMENTS AND TECHNICAL SPECIFICATIONS
- RESEARCH AND DEVELOPMENT
- CONSTRUCTION INDUSTRY ADOPTION
- VENDOR INFORMATION

Evaluation of the Fall Protection of Type I Industrial Helmets

HELMET MANUFACTURERS

Bullard · Pyramex · Petzl · Kask · 3M · MSA · Studson · JSP · Klein Tools · Milwaukee · Wavecel

MCAA | SMACNA | TAUC
SAFETY & HEALTH CONFERENCE

Case Study

Thank You For Attending!

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