USING HEAD IMPACT MONITORING SENSORS IN FOOTBALL

PRESENTED BY ATHLETE INTELLIGENCE

ABOUT ATHLETE INTELLIGENCE

Athlete Intelligence is the leading data analytics platform that provides comprehensive real-time insights on an athletes' performance and head safety. With advanced athlete monitoring technology and automated reporting tools, we identify areas where your players can improve their technique while decreasing the risk of head injury.

Programs at the youth, high school, college, and now professional levels are utilizing the Athlete Intelligence system to develop more effective and safer players.

CRITICAL INSIGHTS INTO A PLAYER'S TECHNIQUE, HEAD SAFETY, AND RETURN-TO-PLAY

THE ATHLETE MONITORING ADVANTAGE

This document is intended to help you explore the benefits of head impact monitoring technology and the outcomes we expect you to have when using the Athlete Intelligence system.

We will help you explore how programs are currently using head impact monitoring technology to make significant improvements in a player's performance and head safety.

Athlete Intelligence delivers you detailed report summaries designed to provide a clear picture of player and position workload trends.

By breaking the data down for you, we provide clear insights to drive change in a player's technique and safety. Clearly communicating opportunities, we save you time and effort.

The goal of this document is to explain how any team or level of play can leverage the Athlete Intelligence system to create a safer performing atmosphere for its participants.

After reading this report, you should have a clear understanding of how football teams today are embracing head contact analytics in order to gain a competitive advantage and keep their players safe.

As an organization, we have personally witnessed the direct effect our actionable insights have on coaching staff, athletic training staff, and the players who participate.

Effective use of this technology ensures your staff has access to relevant and reliable information when it matters most.

COLLECT. REVIEW. IMPROVE.

REPORT CONTENTS

"The player dashboards with time-stamps give us the ability to compare impact workloads in practice sessions. We can also see what drills have the highest number of head impacts or cause the hardest hits to the head. It's a great way to show the Coaches how much a player hits during games compared to practices."

Football Athletic Training
University of South Carolina

WHAT IS HEAD IMPACT MONITORING?

Head im•pact mon•i•tor•ing

Head impact monitoring is the use of wearable sensor technology that enables you to collect, quantify, and modify the training and performance of your players. The sensors collect and transmit data on the direction, location, count, and magnitude of every head impact. The collected data can be analyzed to:

✓ **Manage Head Contact Workloads**

✓ **Identify Technique Improvement Opportunities**

✓ **Reduce the Risk of Injury**

✓ **Objectify a Return to Play Protocol**
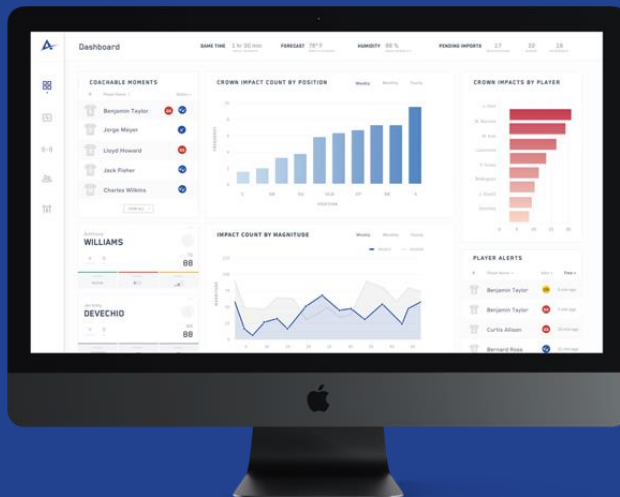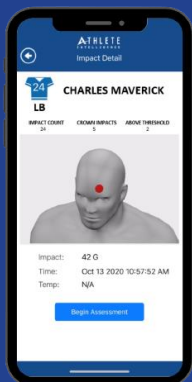
ENHANCING HOW YOU PROTECT AGAINST HEAD INJURIES

Mount Zion High School Football Staff were some of the earliest adopters of athlete monitoring technology. Their feedback validated our mission of providing a resource that could assist both coaching and athletic training staff to improve performance and safety.

Dustin Fink
Head Athletic Trainer
Mount Zion High School (IL)

"

I started to use the system with the Head Football Coach to identify players that had a very high volume of hits to the head. Our Head Coach loved the reports and even expected the weekly wrap-up of not only the number of hits, but where they happened on the head. He and I used them to make some technique changes to our biggest head droppers. It became successful as the players would then modify behavior and how they engaged in contact.
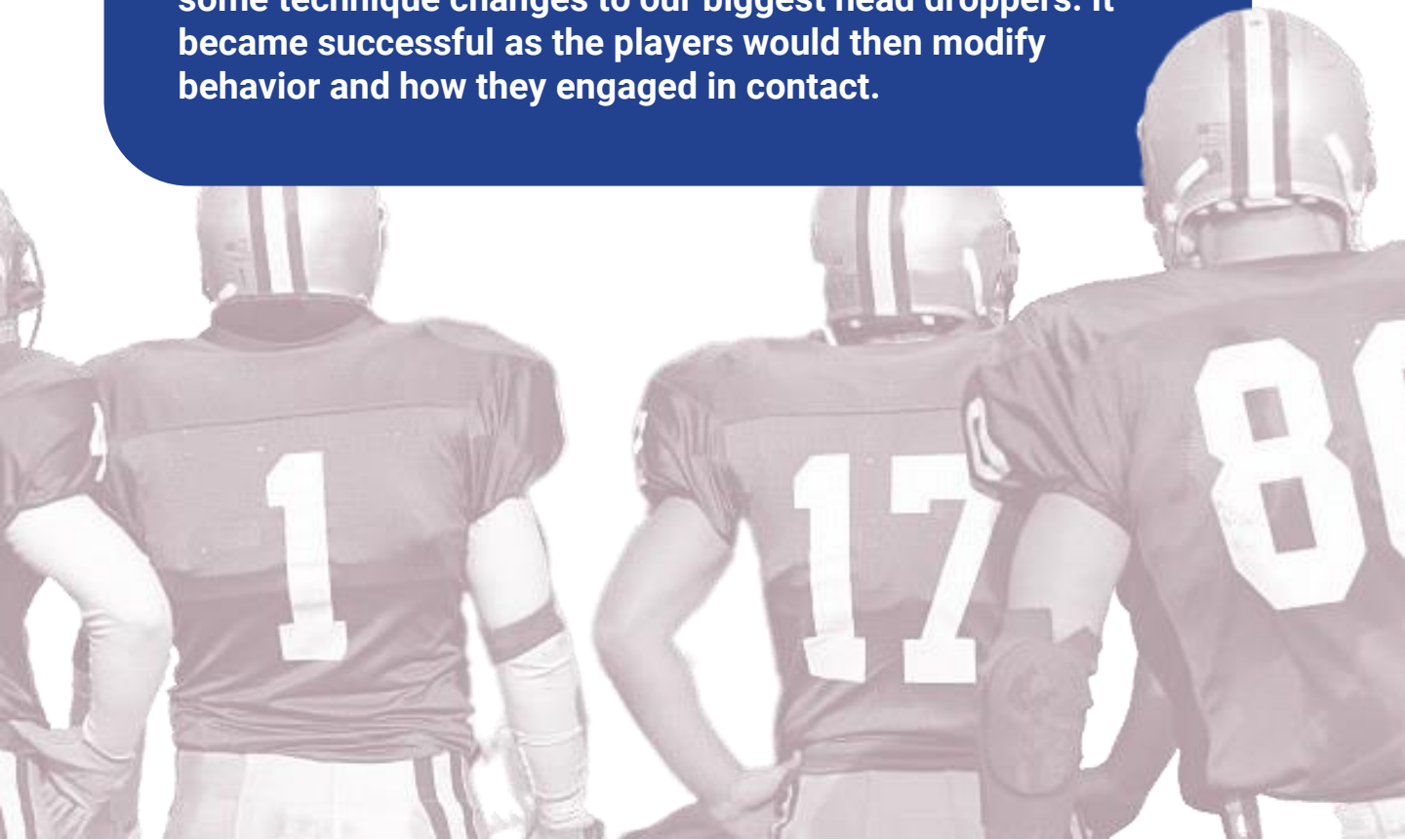
WHAT DATA CAN TEAMS GATHER?

Small enough to fit inside any football helmet, the Athlete Intelligence Design and Engineering team has developed athlete monitoring technology capable of collecting data on every head impact from game and contact practice sessions.

The data collected from these sensors include critical insights into how players engage in head contact and where adjustments must be made to ensure proper technique and safety.

HEAD CONTACT METRICS

HIT COUNT
Total number of
head impacts

HIT LOCATION
Where the hit takes
place on the head

HIT MAGNITUDE
The G-Force
of each hit

The data is presented to highlight workload metrics around head contact patterns and trends. Players performing above team averages present opportunities to be retrained on proper technique.

Teams can access data from a single session or compare sessions over time. Awareness of head contact workloads allows teams to effectively monitor and manage player outputs throughout the season.

"The biggest benefit is that our kids are safer and what we're trying to do is be smarter about how we coach and trying to be more proactive and recognize when a kid is in that danger zone."

Head Football Coach
Glastonbury High School

RANDOLPH YOUTH FOOTBALL'S APPROACH TO HEAD IMPACT MONITORING

As part of their mission statement, the Randolph Youth Football League believes in providing a safe environment to teach athletes discipline, teamwork, competition, and sportsmanship.

Each year, the board strives to deliver a high performing atmosphere while keeping players safe. To enhance these efforts, they implemented the Athlete Intelligence head impact monitoring system so coaches can make more informed decisions into a player's safety and technique.

> **"YOU CAN BUY NEW PADS, NEW HELMETS, AND TEACH GOOD TECHNIQUES, BUT WE WERE LOOKING FOR A WAY TO USE TECHNOLOGY TO GIVE US MORE INFORMATION TO MAKE BETTER DEICISIONS. IMPACT MONITORING WAS A NO BRAINER."**

The decision to implement the technology was not taken lightly.

The league wanted to ensure the system was reliable, easy to use, and provided useful data that could be used to improve player safety.

Since implementing the system, the impact on the team has been significant. Coaches are now able to quickly know which players need more help on technique. They can identify players who have a habit of using their head to block or tackle and can correct it. The system has also enabled them to identify and diagnose injuries more quickly.

By tracking head contact, the coaches are more aware of the exposure and can take corrective steps to limit contact. They are also able to see how their players progress over time providing motivation for players that highlights their improvements.

As a coach, you want to do everything in your power to ensure your players are safe. The Athlete Intelligence system validates those needs are being met.

THE 3 PILLARS OF ATHLETE INTELLIGENCE

When exploring athlete monitoring technology, it is important to find the right system for your program. The Athlete Intelligence system is built upon a foundation of 3 main pillars we strive to deliver:
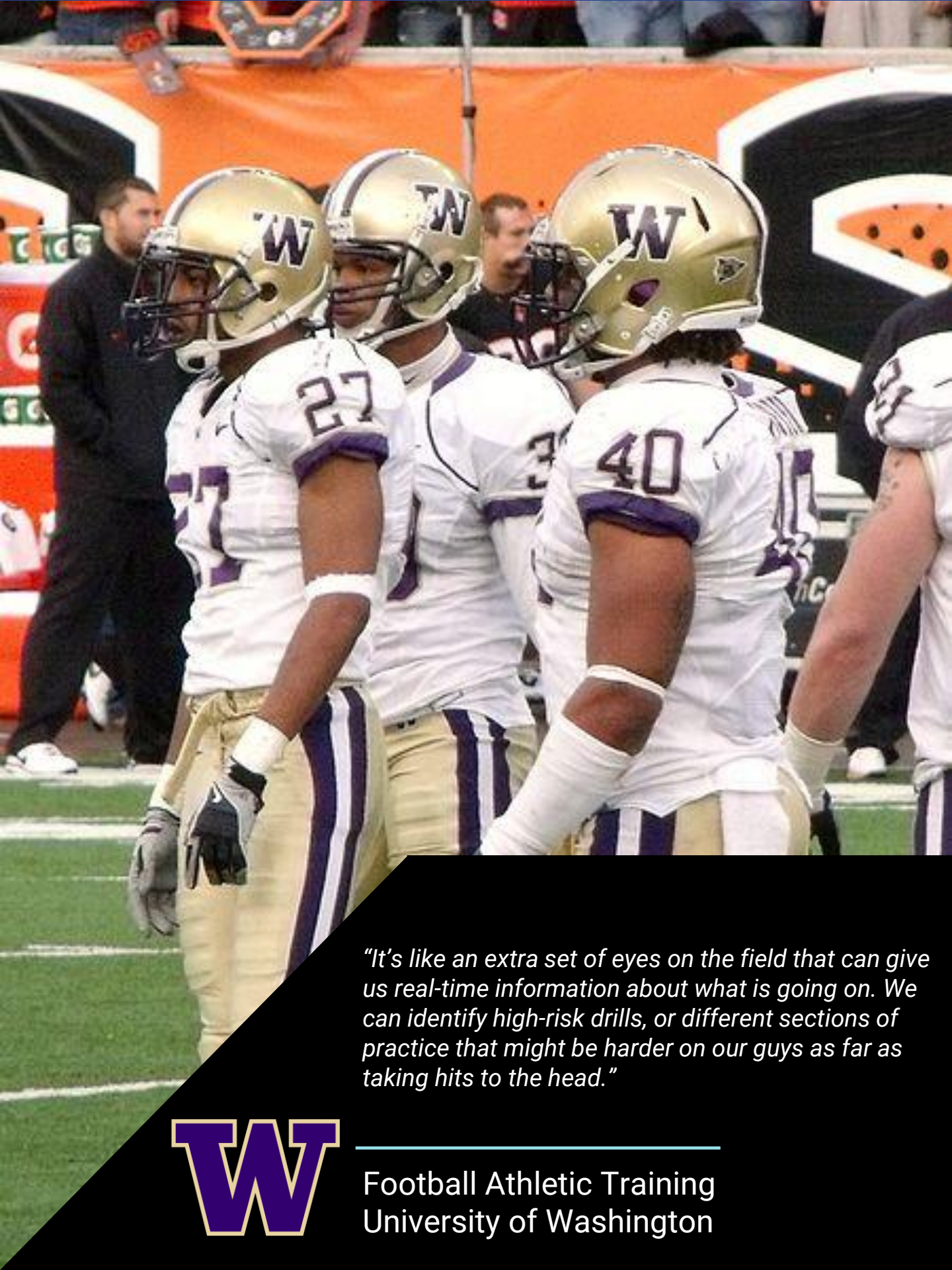
1 ACTIONABLE

Data visualization is key. Our ability to take complex data and turn it into actionable insights is what creates Athlete Intelligence as a valuable resource. The platform clearly highlights team baselines and player outliers make it simple to direct your attention to what matters most.

2 MANAGABLE

When developing the Athlete Intelligence system, we knew operating it had to be simple, painless, quick, and easy. With clear operating tasks and automation, we provide a system that can be utilized by any team at any level of play. Our best practices allow teams to minimize time spent setting up the system and maximize their time for reviewing insights.

3 AFFORDABLE

Athlete Intelligence offers a wide range of product and package options that can be customized to any team size. Through our subscription model, we provide all sensors and accessories at a zero-cost lease. Packages can be designed around a full team of athletes or targeted towards your high-contact positions only.

"It's like an extra set of eyes on the field that can give us real-time information about what is going on. We can identify high-risk drills, or different sections of practice that might be harder on our guys as far as taking hits to the head."

Football Athletic Training
University of Washington

TECHNIQUE ADJUSTMENTS USING HEAD IMPACT DATA

Teaching good habits in our players will enable them to perform at their best while remaining safe. It is every coach's focus to develop effective tacklers and blockers who remove the head from unnecessary contact.

As a smaller team, the Salamanca Warrior Football program has many kids who play both sides of the ball. Limiting contact exposure is extremely critical for those players.

The coaches felt there was a gap between how they teach players to engage in contact versus how certain players responded during drills, but never had the data to support it.

The Athlete Intelligence system quickly filled that gap.

After just a week of practice, it became clear which players tended to drop their heads and become top impact offenders.

Using the Athlete Intelligence reports, the coaches could identify which athletes needed additional help with technique, identifying each player's impact patterns to see a clear picture of how they were using their heads.

The data showed them exactly what needed to be adjusted.

"OUR PLAYERS ARE NOW MORE AWARE OF WHAT PROPER TECHNIQUE LOOKS AND FEELS LIKE AND ARE MAKING A CONSCIOUS EFFORT TO IMPROVE. THOSE WHO STARTED AS TOP OFFENDORS HAVE NOW DROPPED OUT OF ALL TOP 5 LISTS."

Using the system is simple. Prior to a practice or game, the players grab their sensors from the charging boards and place them in their helmets.

Players are experiencing the direct effect of how this data is making them better and safer.

The Athlete Intelligence system has allowed us to be much smarter and more efficient with how we conduct our practices.

After using the system for only a few weeks, we saw the effect we were making by significantly reducing head contact in each practice session.

We're getting the validation we need through the Athlete Intelligence platform that tells us we are doing things the right way. And because of this, our players are better and safer.

COACH AARON HILL – SALAMANCA WARRIOR FOOTBALL

TECHNIQUE ADJUSTMENTS USING HEAD IMPACT DATA

AVERAGES VS OUTLIERS

After just the first two weeks of practice consisting mainly of AIR, BAGS, and THUD drills, impact counts remained low and dropped week over week. Average crown-of-head impact count dropped from 3 to 1 per player.
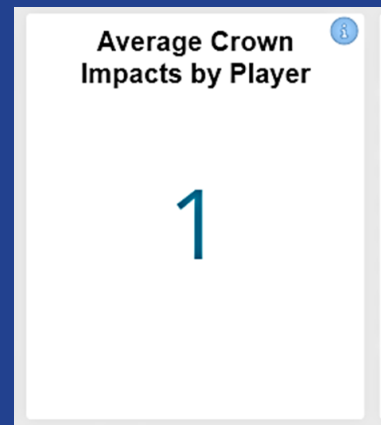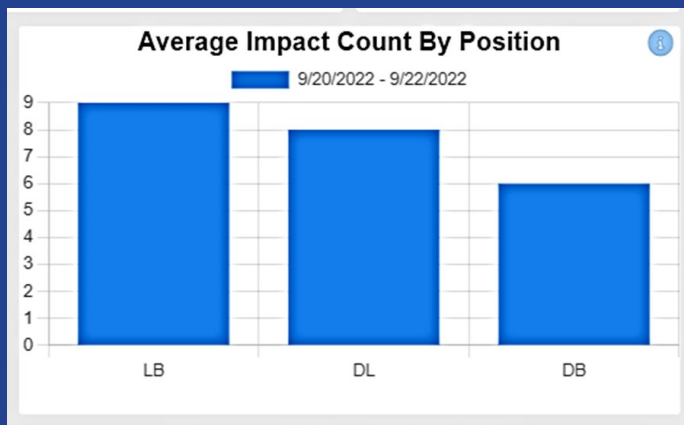
VALIDATING PROPER TECHNIQUE

Top offenders were addressed immediately, with bulk of those players at the DL and LB position. Time-stamped data highlighted which drills cause highest quantity of impacts and location patterns addressed importance of getting the head out of the tackle.

ATHLETE MONITORING DEVICES

CUE SPORT SENSOR

An affordable and entry-level helmet affixed sensor for youth programs or smaller teams.

IMPACT LOCATION

IMPACT MAGNITUDE

IMPACT COUNTS

BLUETOOTH ENABLED

CUE+

Live data streaming with system automation to empower critical decisions about performance, risk, and return to play in real-time.

IMPACT LOCATION

IMPACT MAGNITUDE

SYSTEM AUTOMATION

IMPACT COUNTS

MOBILE ALERTS

VECTOR Mouthguard

Premium head impact monitoring solution for advanced research analytics and insights.

IMPACT LOCATION

IMPACT MAGNITUDE

SYSTEM AUTOMATION

IMPACT COUNTS

MOBILE ALERTS

KINEMATIC EXPORTS

REAL-TIME DATA WHEN EVALUATING CONCUSSIONS

The Central Washington University Football program has always placed the health and safety of their players as a top priority. After a season high of injuries and concussions, it was time to explore new equipment and technology that could help them prevent or better monitor for injuries.

Like many Division II football programs, the athletic training department is small and understaffed. Leveraging technology like the Athlete Intelligence system allowed them to have an extra set of eyes and ears on the field.

After running their first week of practice with the Athlete Intelligence system, athletic training staff began tracking the average impact magnitude. When setting their live alerts, this allowed the team to set their threshold to just above. Now, any time a head impact occurred at or above that threshold, an alert would be sent to their phones or smart watches.

It was a normal day of practice when the first alert went off. While looking down at his watch, Head Athletic Trainer, Isaac Perry, quickly saw the jersey number, name, and impact magnitude size.

"THE REAL-TIME ALERTS OF HIGHER G-FORCE IMPACTS ARE GREAT FOR MONITORING OUR PLAYERS DURING PRACTICE. WE CAN NOW SEE THINGS WE MAY HAVE MISSED AND HAVE INSTANT ACCESS TO MORE INFORMATION ON AN IMPACT WHEN THOSE HARDER ONES OCCUR."

First instinct was to locate the player on the practice field. Once located, Perry could notice the player moving slower, which encouraged him to walk over to the athlete for further diagnosis.

When engaging with the player, the player attempted what most would do; say he feels fine.

Following further evaluation, the player was diagnosed with a concussion.

Had the Central Washington Football program not had the Athlete Intelligence system, this could have been catastrophic for the player.

Instead, quick access to data allowed the staff to take immediate action.

"Using the Athlete Intelligence system has helped us realize the amount of contact for certain positions. This information enabled us to adjust our practice plans in order to reduce the amount of head contact."

President
Shenango Valley Youth Football League

SIMPLIFYING SPORTS TECH

REVIEW INDIVIDUAL & POSITION IMPACT PROFILES

You know how to improve technique when you see an opportunity. So, when it comes to removing the head from contact, the Athlete Intelligence system highlights athletes with the highest impact workloads so you can correct their performance.

REPORTS TO YOUR INBOX

Receive daily, weekly, and monthly impact reports directly to your inbox. Customize who receives reports and frequency of when reports are sent.

CUSTOM WEB ANALYTICS

Drill down by game, practice, position, or players to identify and address player technique improvements. Use impact data to manage head contact exposure and to enhance head safety protocols to keep your players on the field.


MOBILE INSIGHTS

Real-time information provides additional eyes and ears on the field so you can see the hits that would normally go unseen, to make the adjustments you didn't know you needed to make.

WEB PLATFORM ANALYTICS

The Athlete Intelligence Web Analytics platform provides automated reporting tools designed to highlight your teams' top opportunities. Review reports by session type, position group, and over any period.
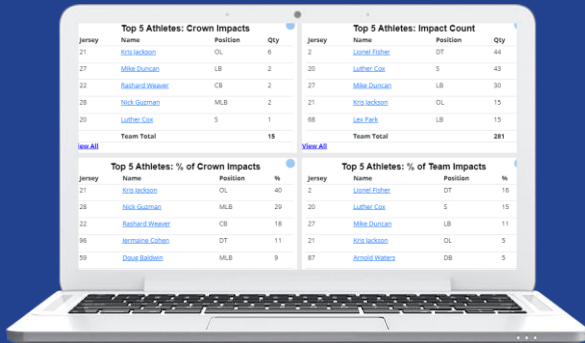
IDENTIFY TOP 5 OFFENDERS

Use the Top 5 report to quickly identify the players at the top of the list of critical metrics like, most crown of head impacts, highest impact workload, hardest hits, and more.
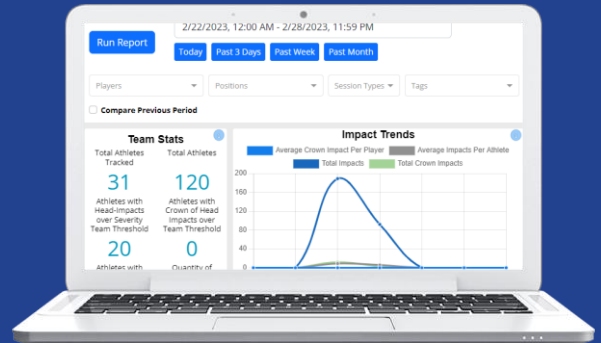
MANAGE WORKLOAD DEMANDS

Track head contact throughout your season and identify the drivers when spikes occur. Compare your game and practice impact workload sessions.

VISUALIZE CONTACT HABITS

A 3D modeling of a player's head shows impact patterns according to how they block or tackle. Use time-stamped data to pair with video.

ESTABLISH BASELINES AND OUTLIERS

Compare workloads by position to see who is driving impact workloads. Identify which drills may be placing the highest load on players.
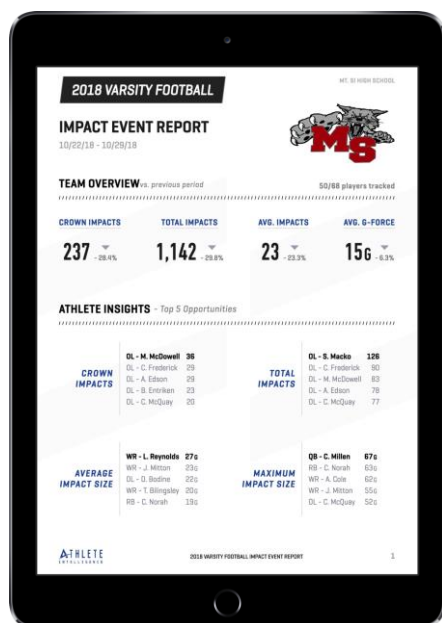
MOBILE INSIGHTS

REAL-TIME IMPACT ALERTS

Set custom thresholds that trigger an alert to your cell phone or watch when an impact magnitude is met or exceeded. Designed as an extra set of eyes on the field that provides objective details on the harder hits that you may not have seen.

Adjust an alert setting by player when returning from protocol back into contact.

E-MAIL REPORTING SYSTEMS

Set daily, weekly, and monthly reports to get delivered directly to your inbox. Access key team and player insights from anywhere.

Customize who receives the reports and when the reports are sent.

GETTING THE MOST OUT OF ATHLETE MONITORING SYSTEMS

The Athlete Intelligence system has been carefully developed and designed for programs at all level of play. In order to accomplish this, we challenged our team to develop simple processes and meaningful reporting tools that were not too complex for the youth while still providing in-depth analysis for the highest levels of play.

Teams who get the most out of their athlete monitoring system focus on the following:

DON'T OVER COMPLICATE DAILY OPERATIONS

Our best practices are designed to make set-up and data download processes simple. Get the most out of your system by using it during games and contact practice sessions. Save yourself time and effort during non-contact days and walkthroughs.

FOCUS ON WHAT YOU CAN CONTROL

Data can be both actionable and informative. Actionable insights allow you to make changes, while informative data allows you to become more aware of situations or events. Focusing on the actionable insights, you can control and manage specific outcomes. Making quick adjustments to a player with a high impact workload provides an immediate improved outcome.

LET DATA EMPOWER DECISIONS, NOT MAKE DECISIONS FOR YOU

Data is not always designed to make decisions for you, but rather used to empower you to make decisions with new insights. Data isn't smart enough to decipher right from wrong, but it is smart enough to provide an objective element that cannot be seen from the sidelines or watching film.

AVOID DATA OVERLOAD

The Athlete Intelligence system can collect a wide range of data points and outputs. Don't overwhelm yourself with data, instead start with the reports and insights that allow you to track the quickest improvements.

Getting the most out of your athlete monitoring system starts with understanding the data outputs you can control and tracking improvements throughout the season.

ADDITIONAL BENEFITS OF MONITORING HEAD IMPACTS

It is no secret that participating in football comes with inherent risks, particularly when it comes to head injuries like concussions. In recent years, football helmet sensors have become more prevalent, with many players now wearing helmets equipped with sensors to track impact data. While these sensors have the potential to improve player safety, the ability to prevent, identify, or diagnose a concussion just isn't there yet.

While these sensors can track impact data and help coaches and trainers identify high-risk players, they cannot prevent concussions on their own. It is essential to remember that the primary function of a football helmet is to protect the head from impact. While sensors can provide valuable information, they do not replace the need for proper equipment and safe playing techniques.

While these sensors can provide valuable data about the severity of impacts, they cannot diagnose concussions on their own. The diagnosis of a concussion still requires a medical evaluation by a trained healthcare professional.

> **The math is simple. If we know how many head impacts our players are taking, we can reduce the number. If we reduce the number, we reduce concussions.**

Football helmet sensors have the potential to improve player safety and reduce the risk of concussions. However, it is crucial to separate fact from fiction when it comes to these devices. While helmet sensors can provide valuable data, they cannot prevent concussions on their own.

By combining sensors with proper equipment, safe playing techniques, and a focus on player safety, we can make football a safer sport for all players. Investing in player safety is always a wise decision, and football helmet sensors are just one tool in the toolkit of comprehensive player safety programs.

> *Research studies show that players with more-frequent, yet lower-intensity hits display more-frequent postimpact symptoms, more undiagnosed concussions, and report that they more frequently continued play despite concussion symptoms. This has suggested the immediate need of impact workload management by player to identify those at the higher end of impact counts.*
>
> *NCAA Research reveals that 72 percent of concussions and 67 percent of total head impact exposure occur in practice. While contact practice is key when preparing for games, being smarter about how you run an effective practice is critical.*
>
> *When establishing head contact management principles at the high school level, teams saw decreases as high as 53 percent for head impacts.*

GET STARTED TODAY

GIVE US A CALL

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SEND AN EMAIL

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ATHLETE
INTELLIGENCE

COLLECT. REVIEW. IMPROVE.

WIN
WITH
DATA

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