**What Will It Take to Increase Likelihood of Concussion Reporting?**

**Background: Concussion Survey Purpose and Utilization**

The objective of the project was to utilize the Concussion Survey, which collected feedback from individuals regarding their likelihood of reporting injuries, to develop insights into the underlying reasons that lead to injury reporting. To achieve this, we will employ two overarching methods: Factor Analysis and Cluster Analysis. The Factor Analysis method will enable us to condense a set of chosen variables into smaller, defining characteristics, aiding in a better understanding of meaningful groups. The Cluster Analysis method will allow us to generate unique combinations of these defining characteristics, representing underlying mindsets and providing us with meaningful groups. The ultimate aim of the project is to propose solutions for increasing concussion reporting likelihood for one or more meaningful groups of young adults. Factor Analysis and Cluster Analysis serve as the steppingstones toward this goal.

**Concussion Survey Statistics**

Respondent Count

The survey contained a total of 510 respondents. There were no partially completed surveys.

Categorical Age: Survey Question Q28

The age of the respondents in the survey varied from 18 years old to 35 years or older. 4 respondents (0.8%) were between the ages of 25 and 34, while 493 respondents (96.7%) were between the ages of 18 and 24. The age frequencies found were very interesting. The lower age groups could be removed from the analysis. However, they were kept for the sake of inclusiveness. The age of the respondents’ frequencies and percentage are depicted in Table 1 Below.

**Table 1. Respondents Age**

|  |  |  |  |
| --- | --- | --- | --- |
| Response | Age | Frequency | Percent |
| Valid | 18 to 24 | 493 | 96.7 |
|  | 25 to 34 | 13 | 2.5 |
|  | 35 or older | 4 | .8 |
| Total |  | 510 | 100.0 |

Highest Level of Education: Survey Question Q36

The highest level of education achieved by the respondents varied from less than high school to a graduate or professional degree. 18 (3.5%) of the respondents have attained a graduate or professional degree. On the other hand, 180 (35.3%) of the respondents have capped out with a high school degree (or GED). The frequencies and percentages of the highest level of education for the respondents is depicted below in Table 3.

**Table 3. Respondents’ Highest Level of Education**

|  |  |  |  |
| --- | --- | --- | --- |
| Response | Age | Frequency | Percent |
| Valid | Less than high school graduate | 34 | 6.7 |
|  | High school degree (or GED) | 180 | 35.3 |
|  | Some college | 167 | 32.7 |
|  | Associates' (2-year college) degree | 47 | 9.2 |
|  | Bachelor's (4-year college) degree | 64 | 12.5 |
|  | Graduate or professional degree | 18 | 3.5 |
| Total |  | 510 | 100.0 |

**Methods: Exploratory Factor Analysis**

Purpose of Exploratory Factor Analysis

The purpose of conducting an Exploratory Factor Analysis (EFA) during the analysis process was so that it could uncover underlying structures from psychographic questions that could provide further understanding of the likelihood of concussion reporting. An effective EFA allowed for many correlated variables in the Concussion Survey to be compiled into groups with single latent constructs or factors. EFA uses correlations within variables to determine the relationships between them and see if some may fit into different factors. This shows the reflective nature of the factors, as they show similarities between variables and how they reflect each other.

Variable Selection

Prior to beginning the EFA process, it was crucial to reduce the number of variables used so that we could have more efficient results. This was done by reviewing each individual variable in the Concussion Survey and identifying relevant psychographic questions that could lead to an effective EFA. Psychographic questions help reveal psychological characteristics, interests, values, tendencies, etc.… Psychographic questions were chosen and extracted because they gave much more valuable insights into the respondents in the survey. After effective review of all the questions in the Concussion Survey, questions Q1\_1 to Q1\_10, Q3\_1 to Q3\_8, Q6\_1 to Q6\_11, Q7\_1 to Q7\_7, Q19\_1 to Q19\_25, and Q27\_1 to Q27\_15 were chosen as relevant psychographic questions that could be used for EFA. These questions were considered relevant due to the nature of the question itself, which asked things that could potentially explain reasons for reporting concussions.

Preparation of Data

Initial preparation of the data was crucial before the execution of the EFA because many of them had out of order Likert scales and were worded longer than needed in the file.. The questions chosen for the EFA produced a total of 76 psychographic questions. With the exception of Q19, which included a 1 to 3 Likert scale, all the other psychographic questions chosen consisted of a 1 to 5 Likert scale. Not only did these questions require recoding due to out of order Likert scales, but due to Q19 having a 3-point scale, they also required standardization so they could all be evaluated and have the same scale.

EFA Method

The rounds of all the EFA factors were done using the Principal Component Analysis (PCA) extraction method. The PCA method allowed for the extraction of maximum variance with a reduction from a large number of variables to a smaller number, which allowed for the simplification of variables into individual factors. Alongside PCA, a Promax rotation method was used for each round. In Promax, rotation factors are considered correlated, which is why this extraction method was used. The Eigenvalue, which explains magnitude or importance, was held at one for each round of the EFA to determine the variance explained. Using these EFA methods and a threshold for the factor loadings of 60% or higher, the pattern matrix was evaluated and reviewed to obtain an understanding of the factor loadings in each round. The pattern matrix produced factor loadings for all the questions, which provided a better understanding of the relationship of each variable to the factors created in all the rounds.

EFA Results and Explanation

EFA Round 1:

The first round of the EFA contained all seventy-six psychographic questions chosen during the data preparation. The pattern matrix for round one included thirteen factors created and seventy-six questions. Factor one had the most questions, while factors ten to thirteen had minimal questions. The variance explained in this round was 59.7%, which is lower than the threshold. After this first round of EFA concluded, twenty questions did not load past the threshold on the established factors. These questions included, ZrQ1\_3, ZrQ1\_9, ZrQ6\_8, ZrQ6\_10, ZrQ6\_11, ZrQ7\_7, ZrQ19\_1, ZrQ19\_6, ZrQ19\_7, ZrQ19\_9, ZrQ19\_11, ZrQ19\_14, ZrQ19\_18, ZrQ19\_24, ZrQ27\_1, ZrQ27\_2, ZrQ27\_3, ZrQ27\_6, ZrQ27\_10, and ZrQ27\_12. This resulted in executing a second round EFA with fifty-six questions, which excluded the ones listed above.

EFA Round 2:

The second round of the EFA contained fifty-six questions from the chosen psychographic questions. The twenty questions from the first round that did not load past the threshold into established factors were excluded from the second round EFA. The EFA pattern matrix resulted in twelve factors. Factors one to four had the highest number of questions loaded, and factors nine to twelve had the least. The total variance explained in this round jumped above the threshold with a variance of 62.1%, which is also higher than the first round EFA. The second round of EFA resulted in four questions that loaded less into the established factors. These questions included ZrQ3\_1, ZrQ7\_2, ZrQ7\_3, and ZrQ27\_14. This resulted in executing a third round EFA with fifty-two questions, excluding the above questions.

EFA Round 3:

The third round of the EFA contained fifty-two questions from the chosen psychographic questions. The four questions from the second round that did not load past the threshold into established factors were excluded from the third round EFA. The EFA pattern matrix resulted in eleven factors. Factors one to four had the highest number of questions loaded, and factors nine to eleven had the least. The total variance explained in this round remained steady above the threshold, with a variance of 62.1%, similar to the second round EFA. The third round of EFA resulted in all the questions loading heavily into established factors. Although this could be considered the final round EFA, as the established factors were not satisfactory and too broad, some factors did not contain enough factor loadings to move forward. Prior to running the fourth round of EFA, established factors containing less than three heavily loaded questions were excluded. This resulted in ZrQ27\_4, ZrQ27\_5, ZrQ27\_13, and ZrQ27\_15 being excluded from the fourth round EFA.

EFA Round 4:

The fourth round of the EFA contained the forty-eight questions from the chosen psychographic questions. The EFA pattern matrix resulted in nine factors. Factors one to four had the most loaded questions, and factors eight and nine had the least. The total variance explained in this round remained steady above the threshold with a 60.7%, slightly lower than the third round EFA. The fourth round of EFA resulted in all the questions loading heavily into established factors. Although this could also be considered the final round EFA, the established factors were still unsatisfactory and too broad. It was concluded that one final step must be taken to produce an effective final EFA. Ten more questions would be removed to reduce the number of questions and create efficient established factors. The decision to remove these questions was based on evaluating the similarity between questions in established factors that contained more than five questions. If two questions were similarly worded and asked the same thing, then the least heavily loaded one would be excluded. Using this process, the result was the following questions being dropped: ZrQ3\_4, ZrQ3\_8, ZrQ6\_1, ZrQ6\_4, ZrQ6\_7, ZrQ19\_2, ZrQ19\_4, ZrQ19\_17, ZrQ19\_20, and ZrQ19\_2. This resulted in executing a fifth round EFA excluding the above questions.

EFA Round 5:

The fifth and final round of the EFA included thirty-eight questions from the psychographic questions. The EFA pattern matrix resulted in nine factors being established, with a total of thirty-eight questions. Factors one to four had the most loaded questions, and factors eight and nine had the least. The total variance explained in this round jumped above the threshold with a 63.8%, which is also higher than all of the EFA rounds. The fifth round of EFA resulted in all the questions loading heavily into established factors, each having between three and five questions. This round finalized the EFA process and was considered the final round. The results of the final EFA and the factor names are depicted in Table 4.

**Table 4: Final Round EFA and Factor Loadings**

**Factor 1: Intrinsic Motivation**

|  |  |  |
| --- | --- | --- |
| Question Number | Question Label | EFA Factor Loading |
| ZrQ19\_8 | Zscore: Because I feel a lot of personal satisfaction while mastering certain difficult training techniques. | 0.792 |
| ZrQ19\_15 | Zscore: For the satisfaction I experience while I am perfecting my abilities. | 0.790 |
| ZrQ19\_12 | Zscore: For the pleasure I feel while improving some of my weak points. | 0.783 |
| ZrQ19\_23 | Zscore: For the pleasure that I feel while learning training techniques that I have never tried before. | 0.753 |
| ZrQ19\_13 | Zscore: For the excitement I feel when I am really involved in the activity. | 0.728 |

**Factor 2: Benefits of Reporting**

|  |  |  |
| --- | --- | --- |
| Question Number | Question Label | EFA Factor Loading |
| ZrQ1\_8 | Zscore: My family, friends, etc. will be better off in the long run. | 0.871 |
| ZrQ1\_7 | Zscore: I will be better off in the long run. | 0.824 |
| ZrQ1\_4 | Zscore: The sooner I’ll be back at full strength. | 0.761 |
| ZrQ1\_6 | Zscore: My friends/co-workers/teammates will think I made the right decision. | 0.753 |
| ZrQ1\_10 | Zscore: I have a higher chance of a full recovery. | 0.726 |

**Factor 3: Know How**

|  |  |  |
| --- | --- | --- |
| Question Number | Question Label | EFA Factor Loading |
| ZrQ6\_2 | Zscore: I know where to find the advice I need when trying to decide whether I should tell someone I might have a concussion. | 0.823 |
| ZrQ6\_3 | Zscore: I would know how to make the decision about whether to tell someone I might have a concussion, even I thought there were as many reasons not to tell as there are to tell. | 0.794 |
| ZrQ6\_9 | Zscore: I know when I need to ask someone else to help me decide whether to report my symptoms. | 0.729 |
| ZrQ6\_5 | Zscore: I am able to recognize a good plan of action when it comes to a possible concussion. | 0.714 |
| ZrQ6\_6 | Zscore: I know how to keep myself from making decisions that might have long-term consequences for my health. | 0.669 |

**Factor 4: Exceptions**

|  |  |  |
| --- | --- | --- |
| Question Number | Question Label | EFA Factor Loading |
| ZrQ3\_6 | Zscore: If you did not lose consciousness | 0.809 |
| ZrQ3\_2 | Zscore: If you felt bad, but did not think you had a concussion | 0.745 |
| ZrQ3\_3 | Zscore: If you did not take a direct hit to the head | 0.737 |
| ZrQ3\_5 | Zscore: If you had something you needed to get done | 0.723 |
| ZrQ3\_7 | Zscore: If you thought someone might think less of you | 0.696 |

**Factor 5: Health Conscious**

|  |  |  |
| --- | --- | --- |
| Question Number | Question Label | EFA Factor Loading |
| ZrQ27\_8 | Zscore: I’m constantly examining my health. | 0.873 |
| ZrQ27\_7 | Zscore: I reflect on my health a lot. | 0.819 |
| ZrQ27\_11 | Zscore: I’m very involved with my health. | 0.812 |
| ZrQ27\_9 | Zscore: I’m alert to changes in my health. | 0.694 |

**Factor 6: Extrinsic Motivation**

|  |  |  |
| --- | --- | --- |
| Question Number | Question Label | EFA Factor Loading |
| ZrQ19\_10 | Zscore: For the prestige of being an athlete. | 0.823 |
| ZrQ19\_22 | Zscore: To show others how good I am at my sport. | 0.817 |
| ZrQ19\_16 | Zscore: Because people around me think it is important to be in shape. | 0.69 |
| ZrQ19\_21 | Zscore: Because I would feel bad if I was not taking time to do it. | 0.678 |

**Factor 7: Perceived Severity**

|  |  |  |
| --- | --- | --- |
| Question Number | Question Label | EFA Factor Loading |
| ZrQ7\_5 | Zscore: There is little risk in waiting a few days to see if your concussion-like symptoms go away before telling anyone. | 0.854 |
| Zrq7\_6 | Zscore: There is little to be gained by telling someone you might have a concussion. | 0.767 |
| ZrQ7\_1 | Zscore: I would want to try to make sure I had a concussion before I told someone about it. | 0.75 |
| ZrQ7\_4 | Zscore: Unless your symptoms are really severe, there is little reason to tell someone about them. | 0.709 |

**Factor 8: Withdrawal**

|  |  |  |
| --- | --- | --- |
| Question Number | Question Label | EFA Factor Loading |
| ZrQ19\_3 | Zscore: I used to have good reasons for doing sport, but now I am asking myself if I should continue doing it. | 0.841 |
| ZrQ19\_5 | Zscore: I don't know anymore; I have the impression of being incapable of succeeding in the sport. | 0.823 |
| ZrQ19\_19 | Zscore: It is not clear to me anymore; I don't really think my place is in sport. | 0.739 |

**Factor 9: Lack of Control**

|  |  |  |
| --- | --- | --- |
| Question Number | Question Label | EFA Factor Loading |
| ZrQ1\_2 | Zscore: I will fall behind. | 0.749 |
| ZrQ1\_1 | Zscore: I will no longer be the one who says when I am ready to return to activity. | 0.871 |
| ZrQ1\_5 | Zscore: I will be held out of upcoming events even if it is not a concussion. | 0.650 |

**Results & Insights: Exploratory Factor Analysis**

Factor Reliability Tests Results:

The reliability test results for the factors Intrinsic Motivation, Benefits of Reporting, Know How, Exceptions, Health Conscious, Extrinsic Motivation, Perceived Severity, Withdrawal, and Lack of Control all displayed excellent results in Cronbach’s Alpha, Composite Reliability, and Average Variance Explained. However, the last three factors, Perceived Severity, Indifference, and Lack of Control, displayed poor results for Cronbach’s Alpha and Average Variance Explained. The results of the factor reliability test for each factor are depicted in Table 5.

**Table 5: Factor Reliability Test Results**

|  |  |  |  |
| --- | --- | --- | --- |
| Factor Name | Cronbach’s Alpha | Composite Reliability | Average Variance Explained (AVE) |
| Intrinsic Motivation | .843 | 0.888 | 0.614 |
| Benefits of Reporting | .857 | 0.902 | 0.648 |
| Know How | .854 | 0.875 | 0.586 |
| Exceptions | .814 | 0.873 | 0.579 |
| Health Conscious | .834 | 0.891 | 0.672 |
| Extrinsic Motivation | .803 | 0.860 | 0.607 |
| Perceived Severity | .792 | 0.873 | 0.632 |
| Withdrawal | .784 | 0.865 | 0.682 |
| Lack of Control | .665 | 0.817 | 0.602 |

Confirmatory Factor Analysis (CFA)

The CFA results indicated good fit (RMSEA = 0.037, CFI = 0.943, TLI = 0.936, and SRMR = 0.045).

Insights

The factors established using EFA will be used further during the next steps of the data analysis to create and evaluate meaningful groups. The creation and evaluation of meaningful groups will result in a more profound understanding of the underlying characteristics of an individual's likelihood of concussion reporting.

**Methods: Cluster Analysis**

The Cluster Analysis method will allow us to generate unique combinations of these defining characteristics, representing underlying mindsets and providing us with meaningful groups. For Cluster Analysis, we used the k-means cluster solution as it is a robust and reliable method. The k-means solution minimizes the distance between the sum of squared distances between data points. The defining characteristics came from our Factor Analysis results. We chose Intrinsic Motivation, Extrinsic Motivation, Benefits of Reporting, Know-How, Exceptions, Health Consciousness, Perceived Severity, Withdrawal, and Lack of Control.

The final cluster solutions ran were from k = 2 clusters through k = 8. We examined Beta values and the number of cases for outliers and anomalies that could skew our clusters. We conducted this analysis using the k-means cluster solution. K = 2 through k = 4 didn’t provide enough spread of cases, with the numbers being even across all clusters. We concluded that more than k = 4 clusters were needed to ensure uniqueness. We found that k = 6 was the optimal cluster count because it provided an optimal level of spread and Beta levels. However, going beyond k = 6, such as k = 7, resulted in excessively high and extreme beta variables, and uneven distribution of cases among clusters.

Next, we needed to better describe our clusters to bring them to life, so a logistic regression was necessary. First, we separated our clusters from our QCL variables. An example of this code is “compute cluster1=qcl\_1=1”, where numbers after “cluster” and the final “=” were changed to 2-6 accordingly. With these cluster variables established, we conducted the regression.

In the regression, our dependent variable was our newly coded clusters, and the covariates were all the recoded, standardized psychographic questions. We chose to include all these questions, not just the factors, believing it would better characterize each cluster. We employed a forward: conditional method for regression runs. Upon obtaining each output, we examined the “model summary” table, considering the “-2 Log Likelihood” and the “Nagelkerke R Square” values to determine the ideal step. If the Log values approached 0 and the R Square approached 1, the step was considered invalid. We then referred to the “Variables in the Equation” table to identify the corresponding step and copied the output variables into Excel. This process was repeated for all six clusters, ensuring no 0 score Logs or 1 score R Squares.

With the values in Excel, we compared the Beta scores to the questions they pertained to. A positive Beta indicated alignment with the question, while a negative Beta indicated misalignment. For questions with negative Beta scores, we reworded them to facilitate cluster description. With this, we could describe each cluster and assign them names.

**Results & Insights: Cluster Analysis**

**The Yes Man** - I care a lot about what others think of me. If people think it is important to be an athlete, so do I. I’ve been playing sports because others in my circle do, but recently I’ve been rethinking it. Should I keep playing just for validation from others? I am a little anxious on when to speak out about injuries, so I will only report those injuries when they are severe. I honestly don’t know when an injury is serious enough to report.

A graph with a hexagon shape

Description automatically generated with medium confidence

**The Work Horse -** I play sports to keep myself occupied; I don’t care if I get better at the sport at all. In fact, I don’t care about a lot of things, especially my health. I know how to go about reporting my injuries, but that doesn’t mean I will take action about it. I’d rather keep the info about an injury to myself, than to report and be wrong. I do this because I think my friends and family might question my decision to do it in the first place. If I do have an injury I want to get back on the field as fast as possible, there is no need to wait for confirmation, I just want to play. I show up, day after day and get my work done, and I can’t miss any practices/games, the team counts on me. I’m worried if I report my injuries I will be pulled from the game/team.

A diagram of a diagram

Description automatically generated with medium confidence

**The Conscientious Player** - I have never understood those with a passion for sports. Why would I put my body on the line for competition? The risk of Injury overrides the risk of reward. I don't know the specifics of concussion health, but I understand that my judgment would never outweigh that of a doctor. Everyone should understand this uncertainty and report any symptoms regardless of severity. If I were ever to be put in the situation of participating again in any sport, I would rather protect my health and voluntarily sit out.

What would I do if I thought I had a concussion? If I had an accident and I showed any symptoms of a concussion, I would tell someone right away. I could care less if that takes away from playing more; I care way more about my health. I know I'd be better off in the long run if I reported, and I know for sure that the people I care about would support that decision.

A diagram of a graph

Description automatically generated with medium confidence

**The Passionate Athlete** - I love what I do and have never had any reason to stop pursuing success in my sport. There is nothing like pushing yourself to be the best you can be in your field. When competing against others who push my abilities, I feel like it's what I was born to do. Concussions can be common in my sport, but I care about my health and know the severity and the possible symptoms.

If I ever thought I had a concussion, I would want to tell someone who can help so I can recover quickly and get back on the field. There aren't a lot of injuries other than concussions that will force me to sit out. Any sprain, cramp, or bruise, I'll fight through in order to help my team win. Not only do I know that it would be best for me to sit out if I had a concussion, but my friends and family would agree with me.

A graph with white lines and blue line

Description automatically generated

**The Resigned Realist** - I have lost hope in succeeding in my sport. I no longer participate in my sport for a sense of satisfaction or pleasure, I believe there is something else for me and I am very ready to find it. Good question - what would I do if I thought I had a concussion? Well, if I report what I might think is a concussion, I am not worried about the fate of my future because I feel that my fate is not in the next game. That means I wouldn’t mind missing some playing time. That might give me the break I need to figure out what is next. But that doesn’t mean I am going to tell anyone. I do not see many benefits to telling someone I might have a concussion, especially since doctors tend to be expensive. So, who knows what I would do. I would certainly make sure I think I have a concussion before deciding to tell someone. If I did decide to tell someone, I feel that I would know where to go and what to do.

My time as an athlete is limited. I certainly hope that I can survive my final days without an injury that might keep me from being successful in my next life. If that happens, I’ll have to decide what to do when the time comes. Your guess is as good as mine what that decision will be.

A diagram of a hexagon with white lines and red line

Description automatically generated

**The Cautious Pragmatist** - I am the person who believes that playing a sport is valuable training for life. I enjoy playing to show others that I am good at my sport and to create opportunities beyond it. I soak up every opportunity in my sport that I believe will help me beyond the court. I have been doing this for a long time and know it can’t last forever. In fact, I have been wondering lately whether my place is in this sport.

So, what would I do if I thought I had a concussion? Well, to be honest, I probably wouldn’t tell anyone. While I know everyone says that telling someone is the fastest way to get back to full strength, there is too great a chance that I would lose control over whether I get to play. Someone else would be calling the shots and I would fall behind. I still have things I want to do in my sport and am not ready for someone else to sit me down.

If I did decide to tell someone, I would know how to follow through on that intention. I just don’t believe that there is much to be gained by telling.

A diagram of a diagram

Description automatically generated with medium confidence

After completing the cluster narratives, we believed it would be very beneficial to dive deeper into some of the mean scores for each cluster. Doing this would give even more insight into why each cluster behaves and answers questions in the way they do. We concluded it would be important to investigate the scores for the questions “How likely are people in your sport or activity to get a concussion?” (**Figure 1**) and “” (**Figure 2**)

**Figure 1.** “How likely are people in your sport or activity to get a concussion?”

A screenshot of a video game

Description automatically generated

This is important to look at because if the respondents don’t believe their sport to be inherently dangerous, then that may affect their answer because they believe a concussion will most likely never happen.

**Figure 2.** “How likely would you be to tell someone if you thought you have a concussion”

A screenshot of a computer

Description automatically generated

After concluding our Cluster Narratives, our group began looking at mean scores for each cluster with respects to certain questions. **Figure 1** is on a 5-point scale, **and Figure 2** is on a 100-point scale. After looking at these scores, thought it would be important to look at those who believed they had a low chance of getting a concussion and a low likelihood of reporting. Those clusters are the “Yes Man” and “The Workhorse”. We believe that those clusters all play a low-injury sport, which in turn reduces the likelihood of reporting a concussion. Our group wants to implement steps to increase those respective cluster’s likelihood of reporting. Just because a sport has a low chance of concussion, doesn’t mean you shouldn’t report if you do get one.

**Overall Insights for End Goal**

Overall, this process was quite lengthy and revealing. Through both Factor Analysis and Cluster Analysis our team was able to derive many findings that could help drive potential insights. We have gone through the data, uncovered defining characteristics, and used the defining characteristics to discover meaningful groups. We’ve brought those meaningful groups to life with descriptions using radar charts and logistic regression. And we gave you some insights into each group’s likelihood of reporting and which groups we should focus on. Now, we need to address the issue of low reporting among the two groups we're focusing on.To increase reporting, we can consider implementing programs tailored to “The YES Man” and “The Workhorse”.

For instance: **1. Anonymous Reporting Systems**: We know that the “The Workhorse” and “The YES Man” both play low-injury sports, and both are the least likely to report a concussion. However, they also share something else in common, which is that they are scared to report because of what others might think. So, implementing anonymous reporting systems where athletes can report injuries or concerns without fear of judgment can help increase the likelihood of reporting. **2. Regular Injury Checks**: Another thing we know is that neither “The Workhorse” or “The YES Man” are health conscious. This means that implementing regular injury checks or screenings to identify any potential injuries. This can be helpful in reaching those who might be hesitant to report. **3. Continuing Concussion Education**:through modules, speaker events, protocol reinforcement.