

Chronic Traumatic Encephalopathy: A Knowledge Assessment in Student Athletes at Albany State University

Background/Literature Review:

Chronic Traumatic Encephalopathy, or CTE, is a neurological degenerative disorder that has been linked to participation in high contact sports (Gardner *et al.*, 2013; Saulle and Greenwald, 2012). These include hockey, boxing, and, most notably, football. Historically, neurological damage due to head injuries has been recognized since the early 1900s, particularly in boxing (Martlin, 1928), but it wasn't until the mid-2000s that serious attention was given to this form of neurological damage in sports through the works of Bennet Omalu of *Concussion* fame (Omalu *et al.*, 2005). The development of CTE is usually linked to the onset of multiple concussions, and recently, this has led to the creation of regulations and procedures to monitor concussive patients within the sports arena. It is estimated that among student athletes, the frequency of concussions is between five and eight events per 1000 player hours, which is estimated to be 1.6-3.8 million concussions per year in the United States. This accounts for approximately 10% of all head and spinal cord injuries (Juneyoung *et al.*, 2013).

State laws vary in terms of how much information must be provided to athletes and others who may potentially develop CTE, and therefore, knowledge gaps may exist for those athletes, particularly in states where the required information is minimal and not

comprehensive (Baugh *et al.*, 2014). For example, states such as Massachusetts and Montana require information to be provided regarding the risk factors for CTE, post-concussion risks, and sign/symptoms of concussions to participants. In contrast, the state of Georgia only requires that the definition of a concussion and risk factors be provided. Therefore, there is a gap in the administrative provision of information as it relates to concussions, and this could impact the level of injuries that are seen in different states. Few studies focus on assessing the level of understanding that athletes, particularly collegiate athletes, have regarding CTE and concussions. While scientists and key stakeholders in the administration of amateur and professional sports are aware of CTE and the development of the disease after concussion incidents, and have been aware for almost two decades (Guskiewicz *et al.*, 2003; Kelly, 1999). That information is rarely translated to the participants to an appreciable extent (Kroshus *et al.*, 2013). As such, players may continue to put themselves at risk through decisions that are dangerous but effective in gameplay. This includes re-entering a game after signs of a concussion, utilizing increasingly violent techniques, and lack of post-game review for any issues. Coaches and medical personnel are often available to assess extent of injury during the activities, but this is after the potential damage has been done.

Awareness of the conditions of concussion and CTE may empower athletes to adjust their performance to protect their health in both the short and long terms. Athletes at smaller institutions, such as Albany State University, are often exposed to the same risk factors as other larger institutions, but the disparity in resources (health, training, etc.) could have a bigger impact on the long-term outcomes as it relates to concussion and CTE

prevention. Therefore, it is critical that the knowledge and understanding of CTE by student athletes at smaller institutions be assessed and addressed in order to supplement the lack of additional resources that are present at larger facilities. As such, the purpose of this study is to assess the level of knowledge and comprehension that student athletes at Albany State University have about CTE in four major areas: pathology, risk factors, current treatments, and prevention.

Specific Aims:

1. To assess and quantify the level of understanding that student athletes possess about CTE and its effects.
2. To identify any information gaps that exist in student athletes regarding CTE and its effects.

Materials and Methods:

Knowledge Assessment Surveys: A knowledge assessment survey (KSA) will be created for distribution to participants within the study. This survey will assess each participant's awareness and understanding of CTE in four basic areas: pathology, risk factors, current treatment, and prevention methods. A Likert scale will be used to assess awareness levels, while true/false and multiple choice questions will be utilized to assess actual content knowledge.

IRB Approval: The proposed research will be submitted to the Institutional Review Board, requested as expedited, for review. Both the methods and the knowledge assessment survey will be reviewed for appropriate use by the IRB prior to distribution among athletes. Disclosures and recruitment information will also be approved by the IRB prior to beginning this study.

Population Demographics for Study: A minimum of fifty (50) student athletes (25 football, 15 basketball, and 10 baseball) will be provided the KSA by Survey Monkey. Paper surveys will be provided to athletes without access to the internet or Survey Monkey. Results from the survey will be collected by Survey Monkey and compiled in a report for analysis.

Statistical Analysis: Basic statistical information will be used to analyze the data collected from the KSA, including mean scores for participants, standard deviation of scores, etc. Analysis of variance (ANOVA) testing will be used to compare the results between participants in each sports category.

Significance of Research:

Studies have shown that while the administrative awareness of CTE in collegiate sports has increased substantially within the last few years, mandates and protocols for prevention of concussion and CTE has been minimally effective as it relates to the student-athlete's agency to protect him/herself (Kroshus *et al.*, 2013). However, this may be due to the lack of understanding that these athletes possess, and if this is the case, understanding these knowledge gaps could assist in the development of training protocols for student-athletes, both in gameplay and in health maintenance during the course of one's athletic career. Furthermore, this research can assist institutions like Albany State University, which is smaller with fewer resources compared to traditional D1 and larger institutions, to develop protective procedures for its athletes that will prevent long term neurological injuries to its athletes. This, in turn, could not only improve the quality of life in student athletes after the completion of their sports careers, but also reduce the likelihood of potential liability and lawsuits for those institutions in the future.

References:

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