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Coaching high school American football offensive linemen to reduce injury

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Abstract

Protective gear is essential in the quest to limit athletic injury as much as possible. American football is no exception. In fact, due to the physical nature of the sport, American football players need more protection than any other sport. Offensive linemen, in particular, need everything from proper cleats to knee braces. Not only do they need specific equipment, but they need to understand the proper way to make contact with the helmet and head in order to avoid neck and spine issues. Player safety should be the most important aspect of any sport, especially contact sports like football. Players should be required to wear appropriate gear and taught appropriate technique from a young age, in order to alleviate as much potential for injury as possible.

Keywords: Football, Coaching, Injury Prevention, Athletic Injuries.

Introduction

Coaches will often say that the back bone to any American football team is the linemen. The offensive line is a position that requires more technical aspects than any other in the game of football. Often at the high school level many position coaches are not what most would consider “highly qualified”. With the offensive line being such a technical position it is crucial for the offensive line coach to be trained.

Protective Gear for the Offensive Linemen

Football protective gear is extremely important, however the basic gear wore by the rest of the positions is not enough for the offensive linemen. The offensive linemen’s legs are often exposed to being rolled up on from behind or the side. For this reason the ankles and knees must be protected further then standard issued gear. Proper cleats suited for the stress of playing the position should also be worn. Many times at the high school level parents will be providing cleats. They should be educated on the type of cleat needed for offensive linemen. A wider then normal shoe which will provide a solid base should be suggested as well as a high-top cleat that fully covers the ankle and provides support for it. One study found that high-top football cleats may reduce ankle range of motion (particularly movements associated with ankle sprains) and that these effects persist after acute physical activity (Daack & Senchina, 2014) [5]. The same study found that high-top cleats also enhance athletes’ sense of ankle stability without disrupting performance (Daack & Senchina, 2014) [5]. Underneath the high-top cleat the ankles must be taped or braced for every practice and game. Many studies have been done on the benefit of bracing and taping to prevent ankle injury (Olmsted & Vela, 2004) [6]. If training budgets cannot provide taping or bracing at this volume then parents must be notified that ankle braces should be purchased.

Knee braces should also be worn. Knee injuries, particularly of the medial collateral ligament (MCL), are the most common injury sustained in American football. While some studies show we cannot conclusively advocate or discourage the use of prophylactic knee braces in the prevention of knee injuries in collegiate football players (Pietrosimone & Grindstaff, 2008) [4]. there are few collegiate programs who do not provide their offensive linemen with knee braces of some sort. Individually molded, double hinged models would be the best but for high school budget this is unreasonable in most scenarios. The single hinge adjustable knee braces sold by many vendors is a more affordable option and should be worn by all offensive linemen during practices and games. These braces can also be used for several years without having to be

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replaced. If the schools budget cannot cover the cost of these braces then parents should be informed that braces should be purchased and worn by all offensive linemen.

The Helmet and Head

Recently there has been a lot of talk about the dangers to the brain of football players. In previous generations the main concern involving the head was striking with the head down. Doing so had resulted in instances of paralysis. The offensive linemen will make contact with his helmet on nearly every run play. High school offensive and defensive line players sustained the lowest-magnitude impacts but the highest number of impacts during games and practices (Broglio & Sosnoff, 2009) ^[3]. Helmet contact is unavoidable.

The proper way to make contact with the head must be drilled from the start. Many of the collisions that happen along the line of scrimmage between offensive and defensive linemen are less impactful than collisions around the field that involve two bodies running full speed into each other. The neutral zone is the length of the football, approximately 11 inches, and is the distance between offensive linemen and defensive linemen. Due to the short distance and starting from a stance with no momentum these collisions are not as violent as the ones seen on other parts of the field. There is a serious issue however with the volume of these hits. Studies are still being performed on the long term effects of these types of collisions. The most important part is to make it so that there is limited helmet to helmet contact and that when the helmet is used in contact that it is used in the safest manner.

The safest way to use the helmet in contact is for the face mask to make contact. The offensive line coach needs to stress the importance of keeping the head up and leading with the face. It needs to be stressed that the offensive linemen cannot try to strike with his face but only leads with it into blocks. The linemen must strike with his hands. The hands are to be emphasized and it should be very clear that the power behind the block will be delivered with the hands and not the helmet. It should be stressed that contact with another part of the helmet besides the face mask is dangerous. Hitting with the top of the helmet elevates the risk of concussion but also increases the propensity for more severe cervical injury (Broglio & Sosnoff, 2009) ^[3]. Many young athletes have trouble envisioning that a technique can hurt them when performed. It is important to not only discuss the dangers but also the performance side. Hitting with the helmet down means that the offensive linemen cannot see what he is trying to block, this will lead to missed blocks. It will also cause the offensive linemen to lean and have trouble sustaining blocks. Whether the coach reaches the athlete using the dangers or the performance aspect, the important thing is that the athlete was reached and is not performing the dangerous act.

Hand Placement and the Shoulders

Offensive linemen often find their hands to be their biggest weapon. In the running game, the hands are used to violently strike opponents and then to control them throughout the block. There is a specific way that the hands and arms, all the way to the shoulder must be used or there is risk for injury, especially in the shoulder. The coach must make sure that the offensive linemen strike defenders with their thumbs facing up and their elbows facing down. It is natural to want to use the hands with the thumbs facing each other and the elbows flared out to either side. This leaves the fingers, wrist, elbow and shoulder in dangerous positions. The joints are not aligned at angles that can withstand the type of force that will be

generated in a block. This closely resembles the position most often described in labrum injuries; the arm is flexed to 90°, adducted, and internally rotated at the time of contact (Escobedo & Richardson, 2007) ^[2]. The offensive linemen must also keep his hands within the framework of his body. Once the hands leave the framework of his body the shoulder is put into a place where the connective tissue is the only thing for the arm to brace against. This can cause tearing in the shoulder. Besides coaching the proper technique for injury prevention it can also be helpful to coach the fact that the offensive linemen will have more power in the correct position and will lead to greater success. In pass protection the punch must be stressed for success. The punch follows the same basic principles for the hand, elbow and shoulder. Punching with the thumbs up and elbows down must be stressed. While in the run game, the helmet will often be braced against the defender along with the hands. In pass protection the helmet must stay far away from the defender leaving the hands as the only point of contact between the offensive linemen and the defender. The shoulder is also at great risk if the punch is not performed properly. Labrum injuries are almost 15 times more common in football players than in the general population (Escobedo & Richardson, 2007) ^[2]. The linemen needs to keep the hands within the framework of his own body just like in the run game. In pass protection, this is even more crucial as the arms are often completely locked out on the defender leaving the shoulder joint exposed if the hands get outside the framework of the body. The linemen must move his feet side to side with the defender to avoid having this happen. Another important factor to limit damage in the shoulder joint for the offensive linemen is to punch and not catch the defender with arms in a locked position. Blocking of an opponent when the shoulder is positioned in 90° of flexion with the elbow locked, causes the shoulder to undergo a posteriorly directed force leading to a significant shearing force that is transferred to the posterior labrum (Escobedo & Richardson, 2007) ^[2]. To prevent this shearing force, the linemen must punch which will transfer force back into the opponent while also slowing down the opponent. In short, a proper punch is required for success as well as health.

Valgus Knee Fault

Offensive linemen at the collegiate and professional level are coached with performance at the forefront of thought and the understanding that they are fully matured adults. A common technique used for offensive linemen involves squeezing the knees together and digging the insteps of the cleats into the ground. This drops the offensive linemen's hips and is believed to create power. This technique even for a fully matured adults is questionable for knee health. The angle that is being created with the knee joint is called a valgus knee fault. Knee valgus is the position when the knees angle inward. This angling inward is an unsafe joint position and causes a greater strain on the ACL (Toscano & Carroll, 2015) ^[1]. High school offensive linemen should not be coached to do this. Coaching them into this position would increase the likelihood of damage to the knee joint. You should instead coach the high school offensive lineman to have a neutral knee position and to avoid a valgus knee fault.

Conclusion

The game of American football is a violent one by nature and due to the violent nature injuries will always be a part of the game. By taking the proper steps an offensive line coach can limit the number of injuries sustained by his players. The

coach can also help to avoid liability by properly training the athlete and educating parents on the preventive measures that are proven to decrease the rate of injury. It is important to remember that player safety should come first at every level of sports, especially high school sports.

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