Head and Neck Injuries in Football

Purpose

The purpose of this project is to see what can be done to prevent head and neck injuries.

Background

Athletes, both amateur and professional and of various ages train in their specialty to improve performance, be at the top of their game and to avoid injury. They work with a variety of experts-kinesiology specialists, athletic trainers, physical therapists, sports psychologists, coaches and many others to achieve their goals. In the world of football, studies are emerging about both short and long term effects from head and neck injuries including post-concussion syndromes, ligamentous and muscular neck injuries.

Methods

Using a query of MEDLINE, PubMed, and various online journals, various articles were reviewed discussing various injury prevention strategies. Basic interview questions to school athletic trainers were compiled for their professional opinion and experience. Letters to the editor, case reviews and book chapters were omitted.

Results and Data Analysis

One article examined a 10 year experience in the epidemiology of sports related injuries. This study examined overall the rates of cervical spine injuries for a variety of sports and was more useful in examining the incidence-where football was noted to have the highest rates.

Two articles looked at a variety of injury prevention programs and interventions related to sports related concussions. These included exercise programs, sports rules/policy changes, protective equipment recommendations, and multifaceted prevention programs Of note, these were using international studies and sports worldwide and not specific to one particular sporting event or injury. In reviewing the rules/policy changes this did show a decrease in incidence of a variety of injuries because of those changes but only one reviewed a decrease in football related injuries from a rule change in 1976. Protective equipment evaluated did not specify football helmets but did evaluate the use of other high impact sports such as skiing, snowboarding, and use of mouth guards in hockey. The multifaceted programs that were studied focused on rugby-two of the studies named did show a decrease in injury claims.

One study examined muscle properties and impacts on head injury risk. This had some of the most specific information especially related to the mechanism of injury. While they note that activation of neck muscles in effecting head injury metrics-it was the posture prior to the impact had had the greatest effect. Their study felt that training an athlete to assume a particular posture would allow for decreased risk of head injuries.

Eckersley, Nightingale, Luck and Bass (2019) had a study examining the role of cervical muscles in concussion. It was found that the location of impact and the force was more influential in injury compared with the muscle state.

Results

A combination of sixteen studies and review articles found evidence to support the hypothesis that strengthening particular muscle groups could help to decrease the incidence of injuries in surrounding areas. This was supported by discussions with trainers and physical therapists. The premise can be applied to strengthening exercises in the neck, shoulders and upper back that would decrease the incidence of neck/head injuries in football. It was found though that the prevention could be more multifactorial and not limited to just a specific training/exercise program that would support surrounding structures. Selective papers reviewed that updated equipment and rules regulating certain contacts, changes in posture, and coaching in form could decrease the incidence of injury.

Limitations

The biggest limitation is that it is hard to replicate actual human studies about head and neck injuries.

Areas for Future Study

Future studies would be sport specific training protocols, length of time training for a sport. Comparison of newer age equipment.

Works Cited

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