

Should children be encouraged to participate in contact sports?

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Introduction:

In recent years, awareness of concussions or traumatic brain injuries have increased tremendously and is a fear of many, with the scapegoat falling onto sports, specifically ones that are defined as “contact sports”. In 2019, 56.1% of youth in the United States stated that they participated in a type of organized sport. Many children grow up playing some sort of organized sport and I am arguing that it is an important component that shapes human development. Contact sports as ones that are traditionally meant to have contact, these include American football, soccer, basketball, hockey, martial arts and many more. There was no specific data found on the percentage of children who participate in contact sports specifically, but many organized sports involve some degree of contact. These sports may also be referred to “collision sports” throughout the paper. Because contact sports are played at a higher intensity, they hold a greater risk for head injuries. Although this holds true, they are not the only sports that have the potential for head trauma. Most sports have the possibility of hitting the ground with a force great enough to generate a concussion. Due to the increased awareness and information on concussions and head traumas, there have been pushes to eliminate contact sports from the lives of children such as American football. Perhaps the most notable advocate in favor of getting rid of contact sports for children such as football is Dr. Benett Omalu, who discovered the first case of chronic traumatic encephalopathy (CTE) in 2002 and is portrayed in the 2016 movie “Concussion” which raises the dangers of head trauma specifically coming from football. Omalu believes that based on the evidence he found that no child under the age of 18 should be allowed to play contact sports (CBC Radio, 2017). The problem with getting rid of contact sports is that they are very important to the development of our character. Additionally, all sports also hold a potential for head traumas and eliminating contact sports would create a massive gap in the

number of sports available for children to participate in. This could lead children away from sports entirely and they won't be able to reap the benefits that sports provide. Although it may also seem that all sports reap the same benefits, contact sports provide additional opportunities for children such as perseverance, toughness, and a place for positive risk-taking behaviors. It is essential to be educated on the topic from people such as Dr. Omalu so that parents and children can make their decision on an individual basis, but not allowing children to play in contact sports entirely is not the answer. As new evidence is found, rules and safety have historically been adjusted to maintain the safest measures possible. If concussions or head traumas do occur in contact sports, there are return to play programs that ensure an athlete is healthy before returning, and many organizations put limits on the number of concussions someone can be diagnosed with before they aren't able to participate. So long as proper safety measures continue to be implemented, contact sports should be encouraged. In this paper I will argue that the benefits outweigh the risk of concussions, therefore so long as proper protective measures are implemented and continue to be updated based on evidence, then we should encourage children to participate in contact sports.

Risks:

To develop an educated stance on whether contact sports should be encouraged in the lives of children, it's important to understand etiology behind the concussions that come as a risk with these sports. A concussion is an injury to the head that causes the brain to move rapidly inside the skull. In general, the symptoms of concussions include but are not limited to headache, nausea, fatigue, confusion or memory problems, sleep disturbances, or mood changes. The symptoms usually occur immediately; however, some may arise days or weeks later (Brain Injury Research Institute, 2022). This the acute and immediate impact of a concussion, however

it carries the risk for longer-term effects as well. These are usually neurological or psychological impairments commonly known as post-concussion syndrome and eventually chronic traumatic encephalopathy (CTE).

The following article by Koh et al. on concussions in contact sports is not specific to children, but it lays the framework for the incidence of concussions in the most intense contact sports at higher levels of athletics. In the article, concussion is defined as “a mild brain injury resulting from a direct blow (blunt trauma) to the head resulting in physiological changes in brain function. A concussed athlete may experience at least one of the following: any period of loss of consciousness (30 minutes or less); any loss of memory for events immediately before or after the injury (post-traumatic amnesia not greater than 24 hours); any alteration in mental state at the time of the event (e.g., feeling dazed, disoriented or confused); focal neurological deficit(s) that may or may not be transient; and an initial Glasgow Coma Scale (GCS) of 13-15” (Koh et al., 2009). This systematic review goes over the prevalence of concussions in the following sports: American football, boxing, ice hockey, martial arts, rugby, and soccer. The results were as follows: Ice hockey had the highest incidence of concussions out of the team sports with its highest rate of incidence coming from a three-day study of a Junior Gold ice hockey tournament in high schoolers at 18.7/1000 player-game hours. The other studies within the article on ice hockey that were spread out over longer time periods showed lower incidence of concussions, making it likely that the rates were only higher in this study because it was a very high-level tournament. The rate of incidence in this study as a percentage only comes out to 1.87%. Among individual sports, boxing showed the highest overall incidence of concussions with the two-year study of professional boxers in New York State holding the highest rate at 0.8/10 rounds fought. This comes to a percentage of 8%. Boxing is expected to have a high incidence

of concussions because one of the ways to score points in boxing is to repeatedly punch the opponent in the face. The review also states that the rate of incidence may be higher in the boxing studies because some may have counted any knockout or technical knock-out (KO or TKO) as concussions. Similarly, the ice hockey and other team contact sport rates may be lower if there is a lack of concern for deeming a blow a concussion to keep players in an important game. A key point to realize is that the studies on both ice hockey and boxing are on high levels of athletics. Although it is expected to be more competitive and physical than the same sports being played by youth, they may have better funded equipment and protective measures to prevent and treatment following concussions. Although this study is limited to contact sports, concussions are a potential result of all organized physical activity; they just have a higher incidence rate in these more heavy-contact sports. An article by Mannix et al. titled “Sports-related concussions – media, science, policy” again emphasizes a component supporting my arguing stating that all athletic activities carry a risk for concussions. The risk may be higher in contact sports, but the rates are still very low. In this article the highest prevalence of concussions came from men’s wrestling at only 11 concussions per 10,000 exposures. That’s only 0.11% (Mannix et al., 2016).

Benefits:

There are many benefits that come from participating in contact sports. Starting with a broad description of the potential benefits of sports in general, Dr. Cindy Gellner from the University of Utah Health states that kids who participate in sports have stronger muscles and bones, helps keep their weight under control preventing childhood obesity, improves cardiovascular endurance, helps with social skills, teamwork, leadership skills, boosts self-esteem, teaches responsibility and discipline, and perseverance. Because of their participation in

sports, they also are exercising their mind leading to improved grades in academia. (University of Utah Health, 2018). All these attributes are appropriate for someone who is participating in a sport. Stronger muscle and bones because they are participating in an organized physical activity. Decreased rates of obesity because they are getting the daily recommendation of activity for children and adolescents as per the CDC, which is 60 minutes of activity a day. Cardiovascular endurance is improved anytime the heart rate increases performing exercise, and in sports there is a bountiful amount of that. Social skills, teamwork, and leadership is developed in most sports because you must work together to be successful as a team. Self-esteem is boosted because as you learn something new you become more skilled with it over time and therefore become more comfortable and confident. Responsibility and discipline are learned because you develop a role within the sport and are making a commitment to the team, whether that means being prompt for practices or eliminating outside distractions. Perseverance is a huge aspect of sports because athletes will always win and lose, and they must learn to overcome the struggles. Perseverance is a very important part of the human development because there are going to be many ups and downs in all of our lives. Athletics and academics are associated well together overall as well. Athletes who participate in sports also learn how to time-manage and these skills benefit their grades in the classroom.

More benefits of sports listed in the article by Mannix et al. include better psychological status, higher educational and career achievements, decreased risk of obesity, and decreased risk of all-cause mortality (Mannix et al., 2016). Mannix states that the solution is not to restrict contact sports or ban them altogether. This could lead to the deprivation of many of the benefits that are mentioned above. Instead, the implementation of proper safety measures, as well as

making contact sports safer as further evidence surfaces is the better way to approach this concussion dilemma.

All the benefits previously stated pertain to contact sports as well, but there needs to be a special consideration for continued participation in contact sports because of the unique opportunities it provides for children. The ways in which contact, or collision sports differ from participation in every other type of sport is the potential to develop respect, perseverance, toughness, and a safer environment to learn risk-taking behaviors. Several articles including one from North Shore Pediatric Therapy has outlined respect as one of the valuable traits that is unique to contact sports. Because of the pace and intensity contact sports are played at and the contact that they require, young athletes learn to have respect for their opponents, and especially for their teammates (Cohen, 2021). Other first-hand accounts and I agree with this because we've experienced it. Practices are long and grueling and the preparation it takes leading up to games causes the athlete to develop a respect for both teammates and opponents. It takes a special kind of toughness to participate in a contact sport and this is a product both mentally and physically of participating in them. They help develop toughness better than non-contact sports because of the contact aspect that it a part of the rules. From the mental toughness perspective, this is very similar to the trait of perseverance. It is present in both non-contact and contact sports; however, it has an exaggerated impact in physical sports because of how intense and complex they are. Children learn to overcome losses and getting outplayed physically by responding with toughness and perseverance. These character traits are harder to develop in non-contact sports because you aren't as challenged.

Learning positive risk-taking behaviors in children is very important to their future development. To introduce the topic, an article by MD Robert Glatter "The Reasons Not to Ban

Contact Sports For Children: An Answer To Concussion” sides against banning contact sports such as American football because he believes it’s not possible to eliminate children’s risk-taking behaviors. Glatter states that children are “biologically more impulsive, less restrained and more inclined to take risks” (Glatter, 2015). However, eliminating contact sports isn’t the immediate solution to the rise in concussion awareness because other recreational or organized activities hold a much higher health risk. Participation in contact sports provide a medium to satisfy children’s natural inclination to take risks while at the same time not being the most severe health concern possible. It’s also important for children to learn to assess risks that come only from contact sports because “this capacity for rapid risk assessment and plan execution, relying on teamwork and assessment of evolving challenges may serve our children well in their later professional lives” (Glatter, 2015). The author goes on to discuss that without taking these risks as children, humans won’t partake in any risk-taking behaviors as adults, such as becoming astronauts, entrepreneurs, explorers, law enforcement, and surgeons. Contact sports provide a perfect framework to begin to develop this characteristic at a young age.

In other research focused on the development of the brain, it showed that the brain systems linked to impulse control and self-regulation doesn’t fully develop until early adulthood (Shulman & Cauffman, 2013). After age 15, the child becomes less vulnerable to participate in risky behavior (Shulman & Cauffman, 2013). Children who grow up and participate in contact sports are finding an outlet for their lack of impulse control and regulation through contact in a controlled setting. Another research article shows the transition from childhood to early adolescence and how risk-taking behaviors change with puberty. Risk-taking behaviors increase in the transition into puberty because of increases in sensation seeking that are linked to dopamine (Steinburg, 2008). To connect the research together on a timeline it can be stated that

children have less impulse control and self-regulation than adults because it's not yet developed, and the transition from childhood to early adolescence involve an increase in risk-taking behaviors. Based on the evidence if children are already more adept to participate in risk-taking behaviors, engaging in a positive risk-taking behavior such as contact sports will assist them in the transition to puberty when they become more inclined to take risks.

Concussions are a very real health concern, but the benefits of participating in contact sports as a child are even greater than the small risk of sustaining a head trauma. Participating in such sports help shape who children become as adults and are a necessary component of human development. Concussions, just like other types of injury, are a potential consequence of participating in sports. Many activities contain risk for injury, so why neglect the abundant rewards that come with participating in contact sports as children. There also tends to be a lack of education towards children in how to prevent and manage concussions if they receive one. Research has also been limited in understanding how serious the potential of concussions at a young age are for children's future. Safety measures should continue to be updated as new evidence comes out to make sure contact sports are as safe as possible. If a concussion does occur, proper treatment and dismissal of sports until cleared by a medical professional are necessary. Additionally, limits on the number of and severity of concussions for someone to be able to participate in contact sports need to continue to be enforced. So long as these interventions are followed, the many benefits of participating in contact sports outweigh the risks of sustaining head traumas such as concussions, therefore we should encourage children to participate in contact sports.

Objections:

The most likely objection to my argument that we should encourage children to participate in contact sports is to eliminate the specific contact aspect from sports. This is not feasible because it would eliminate all the potential benefits that contact sports offer children. As mentioned in the introduction, if sports were limited or contact sports even eliminated altogether, there would be a huge hole in organized sports. Many of the sports children play and love would be gone leaving children without many options to participate in. The children may be turned away from sports if they can't find one they like out of the available options left and will no longer receive the benefits that sports provide such as improved cardiovascular health and decreased risk for childhood obesity. The benefit of the number of sports that they can participate in currently help them find what they are interested in and draws in many more potential athletes to reap the benefits of sports. In the current state of research on concussions and their impact, it is not necessary to ban or discourage children from participating in contact sports.

Another potential objection is that children are too young, and their brains are not fully developed so they will have more serious long-term effects from concussions. They can be at a greater risk for obtaining concussions because of the stage of development of the brain but it doesn't necessarily make concussions more harmful to them. An article by Dennis et al. speaks on "*the young age plasticity privilege*" (Dennis et al., 2013). This is the belief that the younger the age of someone, the greater plasticity their brain has. This is seen in the "Kennard Principle", that was created by Hans-Lukas Teuber who misled people to believe in the wrong information based on Margaret Kennard's research. Kennard states that the supposedly plasticity of the child's brain that is indicated in the principle isn't entirely true and that age is only one factor that shapes recovery and outcome from a brain trauma (Dennis, 2013). One thing that is

true however, is that there's no evidence to suggest that children will have worse long-term effects from a concussion because it is all based on a multitude of factors. It's possible that children may be more resilient to bounce back after a concussion because they have more time to develop, however it hasn't been proven. In the article by Glatter, there was a study done on Rochester, Minnesota high school football players. Following up 50-years later, the football players did not have a higher incidence of neurodegenerative diseases than members of the choir, glee club or band. This is just one study; however, it displays no correlation that children and adolescents are more at risk for long-term effects of concussions because of their age.

As for general objections, it must be clarified that this argument is only justified if safety measures continue to be implemented. There is no doubt that concussions are risky and can be very dangerous, but if organizations are making these sports as safe as they can be, it isn't necessary to stop them entirely. The small risk for concussions and their potential long-term issues isn't prevalent enough to mandate a life-altering change as big as getting rid of contact sports. In support of this argument, the criteria that should be followed and updated constantly as new evidence comes out regarding concussions are proper diagnosis and treatment of concussions, educate young athletes on the risks and ways to prevent them, and implementation of the best return to play programs to mitigate the risk for long term issues if a concussion does occur.

Lastly, it's important to understand a general idea of what return to play programs are regarding concussions. It should be noted that the process of returning from a concussion should never take only a few days, it is a process that should many days, weeks, or months. Per the CDC, "an athlete should only return to sports practices with the approval and under the supervision of their health care provider" (CDC, 2019). The CDC describes a "6-step Return to

Play Progression” that begins with returning to regular activities like school, then progressing to light aerobic activity, moderate activity, heavy non-contact activity, practice & full contact, and competition. There is emphasis on the progression noting that each step may take time and an athlete shouldn’t advance to the next step until they can do the previous one without any symptoms or difficulty. The article by Mannix et al. relays this idea saying, “Current concussion management practices emphasize the need for recovery before return to activity. Players who have sustained a concussion might not be allowed to return to play until they are deemed by a medical professional to have recovered, and some players might even be prohibited from participating after a certain number of concussions” (Mannix et al., 2016). Many sports have a limit on the number of diagnosed concussions you can sustain before you are unable to participate. If these Return to Play programs are implemented universally and we allow children to recover completely before returning to contact sports, the risk for recurring concussions and long-term consequences of concussions should be greatly diminished.

Conclusion:

This paper set out to answer the question, “Are contact sports worth the risk of sustaining concussions?”. The etiology of concussions and their incidence within different types of contact sports was described. Concussions are a health risk to take very seriously, however the rate at which they occur even in contact sports deem them as uncommon. The benefits that come from sports in general, but also contact sports specifically were identified and explained. Some of these benefits included cardiovascular health, decreased risk for obesity, and learning risk-taking behaviors and analysis. The benefits offered a greater impact on the lives of children than the potential risk for sustaining head trauma. There is still not sufficient evidence from studies to truly understand the physiology behind concussions and how directly correlated concussions in

sports are to serious health problems. As for now, health promotion and safety measures need to continue to be adjusted and integrated into contact sports. With the proper measures in place, there is no reason to suggest that the risks outweigh the benefits of children participating in contact sports. In conclusion, we should encourage children to participate in contact sports.

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