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What If We Adopted PPE as a Mindset for Ankle Protection?



By Craig J. Hubbard, Inventor/Designer

Workplace safety, the right to be safe in your workplace and while going about the activities of your work, was certainly a thing before the COVID-19 pandemic struck. However, the pandemic laid bare some of the realities of the workplace that so many of us never even thought about. I'm talking, of course, about Personal Protective Equipment, or PPE. The lack of these humble items—gloves, face masks, face shields, protective gowns—that we all took for granted (except for maybe a limited number of quality assurance officers or risk managers) brought many large institutions to their knees at the start of the COVID-19 pandemic.

Hmmmm, is there another arena where an epidemic is lurking and the need for PPE might be viewed in such a new light?

The arena? Today's universe of organized sports—from Little League to high school to college to elite and professional levels. The epidemic? Lateral ankle sprains (LAS) and the long-term ravages of post-traumatic ankle osteoarthritis (PTAOA). The PPE in question? Evidence-based preventive ankle support.

Ankle sprain, characterized by the stretching or tearing of the ankle ligaments, is among the most common musculoskeletal injuries, particularly among the active population. Ankle sprains account for 80% of all ankle injuries, and 77% are lateral ankle sprains.¹ In their meta-analysis, Dougherty et al² estimated an incidence rate for lateral ankle sprain of 0.93/1000 athlete-exposures (AEs; 1 AE is defined as 1 athlete participating in 1 competition or practice). Conversely, they found incidence rates of acute medial and high/syndesmotic ankle sprains were approximately 0.06 and 0.38/1000 AEs, respectively.² Because LAS are so very common and many people—both athletes and non-athletes alike—do not seek treatment, many believe ankle sprains are benign and they heal by themselves. However, we have all seen the debilitation that repeated ankle sprains can wreak, including decreased performance, missed school/work/competitions, and the drain on the athlete's psyche as well as their pocketbooks. Indeed, nearly 70% of those who sustain an acute ankle sprain may go on to develop residual physical disability, namely chronic ankle instability and ultimately, post-traumatic ankle osteoarthritis (PTAOA).³

Why are Americans suffering LAS at a rate that is consistent and alarming—~50,000 per day—with potential lifelong consequences?

Ankle safety in sports is not given the same media, research, or administrative attention, nor is it subjected to the same risk assessments, standards, and testing as traditional sports PPE, such as helmets, pads, mouth guards, or even the gloves staff use to prevent blood infection. The short- and long-term hidden costs of the cumulative trauma caused by ankle sprains and the subsequent PTAOA are estimated to be in excess of \$6.2 billion USD annually in the US alone.^{1,2} And yet, ankle taping remains the primary PPE for ankles in the professional sports workplace, including today's NFL, NBA, and professional soccer.

We were able to put a Man on the Moon in 1969. Since then, helmets, shoes, pads, and almost every other aspect of the professional sports workplace has evolved, and yet today, essentially the same ankle taping method employed when Neil Armstrong took that “giant leap for mankind,” still persists. So, I have to ask, “Why is it so?”



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Why is concussion the ONLY safety and injury management protocol in professional/organized sports programs that considers the long-term cumulative trauma from a single or multiple injuries? Simple answer: litigation supported by published medical research. Once the medical literature was able to document the cumulative damages claimed by the players and their families, concussion litigation in the NFL changed the playing field to include the word safety. As a result, football helmets go through an extensive series of coordinated laboratory and biomechanical tests to determine their ability to reduce head impact severity.⁴ The tests are designed to mimic the impact of on-field play and players are required to wear helmets that are certified based on these standards which have been established by the National Operating Committee on Standards for Athletic Equipment (NOCSAE). Yet of all the standards the NOCSAE has developed, not a peep regarding ankle taping or bracing in any of the 8 sports it covers—football, baseball and softball, lacrosse, field hockey, soccer, polo, and ice hockey.⁵

The long-term effects of LAS have not garnered such attention to date. As a result, the absence of consistent safety standards and public awareness of the real costs of LAS allows the continued use of ankle tape as PPE for athletics across the spectrum. With no standards to compare against, manufacturers are free to test how they please. At KiSS Ankle Co., we have developed our own ‘safety’ testing akin to that of vehicle crash testing and helmet impact testing, as well as showing the system has Medical Intent, and we have published our results.⁶ We’re happy to show you ours; maybe you should ask our competitors for theirs?

Bottom line, when you go to work and reach for a piece of PPE, you expect it to be ‘safe,’ right? So why should the workplace of LeBron James, Kevin Durant, or Russell Westbrook be any

different? Are their rights to a safe workplace different from Patrick Mahomes, Tom Brady, or Odell Beckham Jr.? Why are Americans suffering LAS at a rate that is consistent and alarming—~50,000 per day—with potential lifelong consequences?³

There are 2 opportunities to affect the rate of PTAOA development: by primary LAS prevention and at the time of injury, and the following months. Safety standards for prophylactic methods like properly fitted braces and affixed tapes need to be developed and applied for both primary and secondary prevention purposes.

What we cannot forget is that when these systems are used on children and professional athletes/employees, they are in fact Personal Protective Equipment. In my opinion, this is not a choice, it is a legal responsibility.

Professional sporting organizations and government bodies should take more active responsibility for the safety and wellbeing of their population's long-term health, through consistent regulation of safety and medical devices. It is also necessary that a 'LAS Management Protocol' consistent with 'Concussion' be developed and applied across sports. Fortunately, most have Concussion protocols that can be adapted to LAS. But the first step must be the recognition of LAS through PTAOA as cumulative trauma.

Many have become conditioned to believe ankle sprains are just part of sport, but I also remember that is what we used to say about concussion, too.

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REFERENCES

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1. Al-Mohrej OA, Al-Kenani NS. Acute ankle sprain: conservative or surgical approach? *EFORT Open Rev.* 2016;1:34-44.
2. Doherty C, Delahunt E, Caulfield B, Hertel J, Ryan J, Bleakley C. The incidence and prevalence of ankle sprain injury: a systematic review and meta-analysis of prospective epidemiological studies. *Sports Med.* 2014;44(1):123–140.
3. Smyth NA, Dawkins BJ, Goldstein JP, Kaplan JR, Schon LC, Aiyer AA. Consumer prices for surgical management of ankle arthritis: limited availability and wide variability. *J Am Acad Orthop Surg Glob Res Rev.* 2019;3(7):e011.
4. National Football League Player Health & Safety. "2020 Helmet Laboratory Testing Performance Results." Released April 2020. Available at <https://www.playsmartplaysafe.com/resource/helmet-laboratory-testing-performance-results/> Accessed Aug. 20, 2020.
5. National Operating Committee on Standards for Athletic Equipment. "NOCSAE Overview." Published November 2019. Available at https://nocsaee.org/wp-content/uploads/2019/11/NOCSAE-Overview_Fact-Sheet_-November-2019.pdf. Accessed Aug. 20, 2020.
6. Hubbard CJ. Joint pressure, volume and alignment in development of AOA: indications for orthobiologics and surgeons. *J Regen Biol Med.* 2019;1(2):1-11. Published under Special Issue entitled: "Current concepts in orthobiologic solutions for osteoarthritis treatment". Edited by: Dr. Gordon Slater. Available at [https://doi.org/10.37191/Mapsci-2582-385X-1\(2\)-011](https://doi.org/10.37191/Mapsci-2582-385X-1(2)-011). Accessed Aug. 20, 2020.