“The Tip of the Iceberg”: Commentary on Sports, Health Inequity, and Trauma Exacerbated by COVID-19

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**Objective:** To discuss the relevance of system-level health inequities and their interplay with race in sports and athletic training, particularly during and after the coronavirus disease 2019 (COVID-19) pandemic.

**Background:** Health inequity is a systemic and longstanding concern with dire consequences that can have marked effects on the lives of minority patients. As a result of the unequal consequences of the COVID-19 pandemic, the magnitude of the outcomes from health inequity in all spheres of American health care is being brought to the fore. The discourse within athletic training practice and policy must shift to intentionally creating strategies that acknowledge and account for systemic health inequities in order to facilitate an informed, evidence-based, and safe return to sport within the new normal.

**Conclusions:** To continue to evolve the profession and solidify athletic trainers’ role in public health spaces post-COVID-19, professionals at all levels of athletic training practice and policy must intentionally create strategies that acknowledge and account for not only the social determinants of health but also the effects of racism and childhood trauma on overall health and well-being.

**Key Words:** health equity, social determinants of health, COVID-19, athletic training

Athletic training as a profession is poised to lead the discussion on equity and its operationalization within sports, allied health, and the wider field of sports medicine. The profession is beginning to acknowledge its clear intersections with broader public health efforts with respect to discourse and initiatives that include population health–based approaches more broadly within athletic training research and practice. However, this movement should also prioritize the intentional inclusion of social and structural determinants of health and the role systemic health inequities play in the health of patients if the profession is to make a comprehensive argument for its inclusion in the public health dialogue.

Efforts to understand the plethora of contributors to optimal health, outside of those in the biological pathway, should also include an evaluation of the social determinants of health. The social determinants of health are defined as the conditions in which people work, live, and play; they are key drivers of racial and ethnic health disparities.1–3 If the athletic training profession acknowledges that racial and ethnic health disparities exist within other spheres of medicine, it has a duty to examine and discuss how these disparities shape health outcomes within athletic trainers’ (ATs’) scope of practice.

Current social unrest, alongside an infectious disease pandemic that is disproportionately affecting minority communities, provides a unique opportunity to further illuminate how athletic training can stand in solidarity with public health efforts to redress the social and structural determinants of health inequities. This is a particularly pivotal moment in modern history given the nationwide recognition that racism is a public health concern.5 In this commentary, we strive to lay the foundation for a discussion on health inequity and its relevance to sports and the clinical practice and education of ATs. We hope to empower ATs to actively and intentionally advocate for an informed framework, which will enable them to assist in addressing the traumas young athletes may experience not only on a daily basis but also during unanticipated events such as the coronavirus disease 2019 (COVID-19) pandemic.

**BACKGROUND**

An important aspect to consider in athletic training and sports medicine is the interconnectedness of an individual’s health to his or her wider experiences in society. When we examine health through a socioecological framework, we know that individual and social factors in the environment influence health behaviors.5 The athletic training and sports medicine professions are overdue in acknowledging and acting on one of the foundations of the field of public health—that health inequity is a systemic and longstanding problem that has produced dire consequences. Health disparities are prevalent among minority adults and adolescents and those who come from low socioeconomic backgrounds. This is particularly evident in the prevalence of chronic disease, access to mental and behavioral health
services, and physical activity opportunities, including sport participation. The COVID-19 pandemic has not only disrupted the routines and lives of families but also exacerbated the effects of longstanding inequities. Thus, low-income and minority communities have been disproportionately affected by COVID-19, with greater rates of hospitalization and mortality. Athlete trainers cannot be uninformed about racial and ethnic health disparities, as the patients they serve are not impervious to the realities of the society in which they exist and play sport. Additionally, traumas associated with specific events such as COVID-19 and those that persist in their daily lives greatly affect patients’ ability to thrive. The rapid onset of the pandemic resulted in the abrupt cessation of school and sport seasons, which disrupted the social supports, such as mental health services and access to food, many families relied on pre-COVID. All of these coupled with extended social isolation and the start of an economic recession, are exacting a mental toll on patients, families, and communities.

The murder of George Floyd and the many people of color before him forces not only society but also sport and sports medicine providers to reckon with the social inequalities that affect many patients and ATs both outside the stadium and on the field. Racial bias can influence the quality of health care and even treatment (or lack thereof) that patients receive from health care professionals. Authors have shown, for example, that individuals of color were more likely to receive lower-quality health care than their White counterparts. In addition to these inequities in access to quality health care, the trauma of racism and discrimination is an adverse childhood experience: researchers showed that it can have prolonged effects on behavior, development, educational opportunities, and mental health outcomes well into adulthood. Failure to acknowledge the systemic and social deficiencies that have facilitated and continue to perpetuate these inequities represents a lapse in the profession’s mission to provide evidence-driven care. The long-lasting influence on health that the experience of race and ethnicity in American society can have needs to become a conversation ATs are equipped to engage in if they are to continue delivering quality, evidence-based care to patients.

**HEALTH EQUITY AND ITS SIGNIFICANCE FOR ATs**

*Health equity,* as defined by the World Health Organization, is the “fair and just opportunity for every person to achieve optimal health, independent of unfair, avoidable, remediable difference among groups.” This definition acknowledges that barriers such as poverty, income, geographic location, access to quality education, and discrimination need to be addressed for health equity to be attainable. The socioeconomic gradient has consistently been found to have an inverse relationship with health outcomes and access to multiple levels of care. Black and Hispanic communities are disproportionately affected by chronic disease. Youth from these communities have fewer opportunities for play, physical activity, and sport in conjunction with limited access to health care and a lower quality of care.

A large body of research has demonstrated myriad examples of inequities in the health care system. Although seemingly unacknowledged by the profession, it is not only plausible but logical that these disparities have already shaped the care being delivered. For example, the prevalence of asthma in some minority communities is relatively low, with the exception of the Hispanic/Latinx community, but minority communities paradoxically tend to have poorer outcomes and higher mortality rates due to asthma. They are also more likely to be exposed to environmental triggers, have less access to appropriate care, and, specifically in pediatric patients, are less likely to have a documented asthma treatment plan. In patients and athletes, these circumstances combine to manifest as the athlete who never has an inhaler at practice, the one who misses school and practice because of asthma, or the player who has no diagnosis or medication at all. Even if an adolescent athlete has a documented treatment plan, adherence to it is not guaranteed if the resources for the consistent presence of a full-time school nurse or AT are limited, thereby potentially decreasing the athlete’s ability to participate in sports and other physical activities. The long-term effect of poorly managed asthma, which predated the initial presentation in the athletic training setting, is one way in which ATs encounter health disparities that are instilled in the larger arena of health care through sports and sports medicine. This example adds to the conversation about access to ATs but also indicates that sphere in which that conversation is occurring needs to be widened. The effect of health inequities in the wider health care system, as well as their presence in and influence on sports and sports medicine must be considered.

Pryor et al., in their landmark study of access to ATs in US high schools, demonstrated a sizeable gap in access. Authors who examined access to AT care in Wisconsin and California observed that athletes who were economically disadvantaged or resided in low-income areas were less likely to have access to ATs. Wallace et al highlighted racial disparities in concussion knowledge among high school athletes, regardless of access to ATs, but African American athletes with access to ATs had better concussion knowledge than those without access. In another study, Wallace et al. demonstrated differences between school locations (urban versus suburban) and noted that access to ATs improved concussion knowledge and reporting behavior among urban athletes.

Regarding survival after sudden cardiac arrest (SCA), Drezner et al. found that non-Hispanic/Latino White athletes had a higher survival rate than athletes from minority groups. This finding was supported by examinations of trends in disparities for pediatric mortality in SCA. El-Assad et al. assessed out-of-hospital pediatric SCA deaths over 16 years and found that although mortality decreased over time in all racial and ethnic groups, non-Hispanic Blacks/African Americans had the highest mortality rate. Drezner et al. noted that this may have been due to minority patients’ being less likely to receive bystander cardiopulmonary resuscitation and schools with fewer resources being less likely to have a cardiac response plan and an automated external defibrillator. However, when an AT was present, 83% of athletes survived. Survival after SCA underscores another key topic in the discussion of access to ATs: Are racial and ethnic disparities present in patterns of AT access and resultant health outcomes such as SCA survival rates? Is there a relationship between economic advantage and higher levels of survival, particularly because schools with more resources tend to have increased availability of ATs compared with schools that have fewer resources?
It is important to recognize that higher income and access to quality health care do not fully protect against the effects of health inequity. Minority youth in higher income brackets continue to have a lower likelihood of adequate access to mental health services.\textsuperscript{46} Even among athletes who obtain access to health care, challenges remain, specifically regarding the credibility of their pain. For example, Druckman et al\textsuperscript{53} found racial bias within National Collegiate Athletic Association sports medicine staffs’ perceptions of athletes’ pain. Bias based on socioeconomic standing also mediated the relationship between perception of pain and race: that is, Black athletes who were perceived to be of lower socioeconomic standing were thought to have a higher pain threshold than White athletes who were perceived to be in a higher socioeconomic position.\textsuperscript{23} Burgeoning research in the field is acknowledging the inequity that exists in various aspects of sports medicine, but an understanding of the wider systemic contributors to these health inequities is paramount to ATs’ evolution and professional advancement.

Increased access to ATs is undoubtedly a public health concern that is also tied to health equity. As such, the profession should prioritize intentional inclusion and understanding of public health concepts, along with health equity, at all levels of the athletic training profession from policy to practice. Understanding the social determinants of health and drivers of health inequities can provide context to patterns that may anecdotally emerge in practice but may also be supported by population-level data. The social determinants of health offer a deeper understanding of the “why and how” behind the effects that events such as COVID-19 have had on so many of the individuals and communities that ATs support.

\textbf{THE SHARED TRAUMA OF COVID-19}

Trauma can be experienced both individually and collectively. The experience of trauma can be characterized as a response to an event, a series of events, or a set of circumstances that is perceived to be deeply distressing and overwhelms an individual’s or even a collective’s ability to cope.\textsuperscript{47} Further, traumatic events are occurrences that can pose physical, emotional, or even life-threatening harm. The traumatic event can have a lasting influence on an individual’s or a community’s functioning, mental or emotional health, physical health, or even social well-being. The COVID-19 pandemic should be acknowledged as an event that has affected everyone, but we would be remiss to ignore how the virus has disproportionately affected Black and Hispanic communities. It has been individually experienced as a compounding traumatic event for many youth athletes who have faced adverse childhood experiences. Adverse childhood experiences are potentially traumatic events that encompass physical, emotional, and sexual abuse; economic hardships; and neglect.\textsuperscript{48} Adverse childhood experiences are extremely prevalent; slightly fewer than half of children encountered an adverse childhood experience.\textsuperscript{49,50} However, non-Hispanic black and Hispanic children were exposed to adverse childhood experiences at higher rates than their non-Hispanic White counterparts.\textsuperscript{49} As the rapid onset of the pandemic rocked the nation, the abrupt end of physical access to schools, sports, and even community centers, all of which can be considered safe zones for youth, created an additional set of stressors on communities that were already strained.

Although many youths across the nation made a seamless transition from in-person learning and sport participation to meet quarantine and social-distancing orders, many Black and Hispanic youth and youth from rural communities lacked the ability to do so. From a lack of access to technology resources, highlighting the digital divide, to the sudden removal of physical access to social support systems outside of the home, many youths experienced difficulties during the transition.\textsuperscript{51,52} Challenges from these shifts can lead to multiple consequences, including delayed educational advancement and halting of the physical and personal development that was occurring through sport participation. Students who had hoped of securing sport scholarships had been delayed and, in some cases, missed the opportunity to pursue further education. Educational attainment, health outcomes, and quality of life are tied to societal and systemic inequity.

Traumatic symptoms such as increased anxiety and fear, social anxiety and social avoidance, depression, grief, emotional numbness, and flashbacks are considered somatic responses to the stimulus that is the experience of COVID-19.\textsuperscript{47} The consequences of sedentary lifestyles on physical health during stay-at-home orders should also be considered potential exacerbators of mental health deterioration.\textsuperscript{20} The experience of COVID-19 as well as the residual influence of the pandemic on the lives of young athletes should raise a key question within the profession: are ATs equipped with the resources and knowledge to address the adverse effects of the pandemic on the patients they serve?

Minority communities have been disproportionately affected by COVID-19.\textsuperscript{13–15} Minorities are more likely to die of COVID-19 because of increased exposure, an increased likelihood of comorbidities, lack of health insurance, and overall inadequate access to mental and physical health care.\textsuperscript{53} With mandatory social distancing (including teleworking) enacted to slow the spread of the virus, Black and Hispanic workers, who were less likely to have access to remote working opportunities, were at increased risk for exposure to the virus during the peak of COVID-19.\textsuperscript{54} Many of these parents and guardians were unable to stay at home to aid with homeschooling or return home at all, presenting another inequity related to educational achievement. For example, low-income youth were less likely to complete homeschooling because of a pervasive digital divide arising from a lack of access to the technological resources needed to successfully participate in virtual learning.\textsuperscript{51,52}

The utility of sport and the importance it has for an athlete can be substantial—potentially now more than ever, given the unprecedented stress and trauma that have resulted from the multifaceted experience of the COVID-19 pandemic. Sport can be a key tool in mitigating the stress of life, providing future opportunities, serving as a mechanism for building resilience, and establishing positive skills to moderate and adapt to trauma and stress that can serve athletes throughout life.\textsuperscript{55–59} Armed with this knowledge, ATs must ensure that as health care professionals, they are contributing to an environment that truly allows for the positive influence of sport to occur and, in this process, prioritizing the reduction of health disparities when possible.

\textbf{THE PATHWAY FORWARD FOR THE PROFESSION}

How can AT’s practices evolve to adapt to the new normal as society emerges from pandemic isolation amid pivotal...
A CALL TO ACTION FOR ATHLETIC TRAINING EDUCATION AND PRACTICE

As societies journey through one of the most collectively disorienting periods in modern history, our hope is that, as health care professionals, ATs will emerge with a desire to understand the experiences and nuances of the communities they have chosen to serve. Ultimately, this transformation may spur efforts among ATs to keep searching for, advocating for, and implementing strategies that ensure that the populations served are truly receiving the long-overdue equitable care they deserve.

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