



Is It Time for A “SCovidAtest” For Pediatric and Young Adult Athletes Affected by Post Acute Sars COVID (PASC)?

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Abstract

Medium to large sample size observational studies, case series, and reviews were used to focus on recent evidence of long-lasting Post Acute Sars COVID (PASC) symptoms affecting child and young adult athletes and similarities to post-concussion profiles. While children and young adults were originally thought to escape severity and lingering symptoms of COVID, our findings clearly show that the illness affects many of them significantly, including athletes. Concussion in youth and young adult sports is common and has a specific assessment and protocol for return to play safety. Our mini review highlights symptom, duration, risks, and disruption similarities between concussion and PASC symptoms. We suggest sports leadership and medicine prioritize consideration of PASC symptoms in assessment and return to play protocols to prevent worsening of symptoms and risk of injury.

Introduction

Concussion/mild traumatic brain injury in youth and adult sports results in a cluster of disruptive symptoms including fatigue, low energy, impaired concentration, balance issues, impaired memory, visual disturbances, and emotional self-regulation [1]. These symptoms interfere with sport and schoolwork as well as safety due to reduced executive function. Sports medicine doctors recommended assessment and return to play protocols to avoid risk of reinjury in which causes longer recovery, more severe symptoms, and even death in some individuals. longer recovery and more intense symptoms [1, 2]. Methods of assessment were developed including the Sideline Concussion Assessment Test (SCAT) for characterizing cognitive and neurobehavioral status of concussed athletes [3]. The SCAT-5 is considered the most effective and reliable method for evaluating skills and abilities needed to assure safety and back-to-baseline ability to play and assesses

orientation, immediate and delayed recall, information processing, reasoning, balance, command following and symptom intensity [3]. Multidisciplinary approaches to treatment appropriate to athletes' needs can then be implemented to include sports medicine physicians, rehabilitation therapists, coaches, family members, and educators toward improving recovery and building toward safe return to play. Similar assessments and protocols have not been a part of return to play considerations for young athletes [1].

Statistical records and epidemiologic overviews document the devastation and changes in daily lives during the COVID-19 pandemic with lock downs and staggering numbers of deaths in the USA alone [4]. Over time, with less severe variants and vaccines, there were significant reductions in fatalities [4]. Research then began shifting past primarily epidemiologic focus to study of symptoms, risk factors, and effects of what is now known as Post Acute SARS COVID or PASC with its diverse, and fluctuating symptoms [5].

While concussion results from a blow to the head, and COVID-19 infection is a multisystem infectious illness, symptom complexities and types are similar, and similarly disruptive, between the two disorders [1, 2, 5]. Effects of lockdowns included interruption of sport play from 2020 to 2023 due to concerns about containing spread of illness and led to deconditioning and loss of skills, as well as reductions in cardiorespiratory fitness in the infected players [6]. Injury rates rose sharply when athletes with low conditioning returned to playing [6]. However, attention has now turned toward the unexpected effects of PASC symptoms as they bring new concerns about young athletes' safety [7]. Symptoms such as lingering fatigue, executive function deficits, impaired attention and memory, slow processing, behavior disorders, and increased anxiety as well as ongoing respiratory problems and postural orthostatic tachycardia syndrome (POTS), even in athletes aged six to eighteen [5,8,9]. Children and young adults were not initially thought to be as much at risk for COVID infection with or severity of symptoms as early research findings associated greatest risk with advanced age and underlying health conditions. Nevertheless, current findings show children and young adults with PASC are missing more school/university and getting poor marks, dropping out of sports, and having more intense anxiety or depression [7-9]. Risk factors for injury and disruption in play due to PASC symptoms includes sex/gender (women and girl athletes more likely), older children, severity of symptoms at time of infection, having COVID multiple times, and loss of sense of taste and smell [5]. We maintain that assessment of PASC affected children and young adult athletes prior to return to play is indicated.

Conclusion

Our mini-review leads us to conclude that either SCAT-5/6 or a revised version, perhaps entitled SCovidAT, should be used to assess young athletes with PASC symptoms so as to identify possible symptoms of inattention, poor memory, visual perceptual and visual spatial skill problems, executive function problems, emotional and behavioral disruption, and slowing of motor speed. These symptoms could worsen with too early return to play and create safety concerns on the field. Justification would be evidence of multisystem involvement and symptoms related to COVID-19 and PASC that linger in young athletes. The problem domains include abilities necessary for safe play such as executive function, cognitive issues with memory and attention, and effects on brain health. If assessment indicates these problems, a protocol for PASC should be implemented to address the symptoms, improve recovery, and reduce chances of injury. A possible plan, similar to post-concussion protocols might include multiple providers, in a team similar to that leveraged after concussion, education for family and athletes,

normalizing of symptoms, and graduated anerobic, then aerobic exercise. It is known that too early and intense aerobic exercise can worsen chronic fatigue in PASC athletes. However, exercise should be a part of the pediatric/young adult athlete PASC protocol as it has known positive effects on brain health. Often the plan includes anerobic as well as gradual increases in aerobic exercise.

Future Research

Further research into the effects of PASC on skill and conditioning as well as risk factors for children and young adult athletes is also strongly recommended to inform the PASC pre-return to play assessment and protocol development for younger athletes.

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Conflict of Interest

No conflict of interest.

References

1. Harmon KG, Drezner JA, Gammons M, Guskiewitz KM, Halstead M, et al. (2013) American Medical Society for Sports Medicine Position Statement: Concussion in Sports. *British Journal of Sports Medicine* 47(1):15-26.
2. Jildeh TR, Castle JP, Buckley PJ, Abbas MJ, Hegde Y, et al. (2022) Lower extremity injury after return to sports from concussion. *Orthopedic Journal of Sports Medicine* 10(1): 23259671211068438.
3. Yengo-Kahn AM, Hale AT, Zalneraitis BH, Zuckerman SL, Sills AK, et al. (2016) The Sport Concussion Assessment tool: a systematic review. *Neurosurgical Focus* 40(4): E6.
4. (2022) Prevention Tcfdca. COVID Data Tracker.
5. Dumont R, Richard V, Lorthé E, Loizeau A, Pennacchio F, et al. (2022) A population-based serological study of post-COVID syndrome prevalence and risk factors in children and adolescents. *Nature communications* 13(1): 7086.
6. Heather K Vincent, Shammi Patel, Jason L Zaremski (2022) Impact of COVID on sports injury patterns, changes in mental well-being, and strategies to prepare for future pandemics in sport. *Current Sports Medicine Reports* 21(6): 196-204.
7. Wang C, Vander Voort W, Haus BW, Carter CW (2021) COVID-19 and youth sports: What are the risks of getting back on the field too quickly? *Pediatric Annals* 50(11): e465-e469.
8. Scarselli V, Calderoni P, Terrinoni A, Davico C, Pruccoli G, et al. (2023) Neuropsychiatric assessment of children with previous SARS-COV-2 infection. *Journal of Clinical Medicine* 12(12): 3917.
9. Avittan H, Kustovs D (2023) Cognitive and mental health in pediatric patients following COVID-19. *International Journal of Environmental Research in Public Health* 20(6): 5061.