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## Article

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## Editorial

# COVID-19 Impact on the Sport Sector Economy and Athletic Performance

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As COVID-19 continues to impact global health, and educational, financial, commercial institutions, sport, in particular, has not been spared. A number of major games, fixtures and competitions have been cancelled or postponed, disrupting governing bodies, organisers, teams, and athletic performers and preventing the continuous streaming of live sport, something the global sporting audience has become accustomed to (Deloitte 2020). A detailed article entitled ‘2020: The Year in Sports When Everyone Lost’ appeared in the New York Times on 13 December. The article reported losses of USD 13 billion in the US sporting leagues, while some of Europe’s largest football clubs reported revenue losses exceeding EUR 1 billion. The outcomes were equally disastrous in other sub-sectors of sport, including Wimbledon and the Olympics (Sato et al. 2020; Skinner and Smith 2021).

In March 2020, the World Health Organisation (WHO) defined the coronavirus disease 2019 (COVID-19) as a pandemic. The current global context indicates a volume of 246,357,468 confirmed COVID-19 cases with a concomitant fatality trend of 4,995,412 (WHO 2021). Regarding cost, it is estimated that the United Kingdom would experience a drop in revenue of GBP 8.6 billion, which would equate to approximately 17% of the total decline across Europe. In broader terms, the impact of COVID-19 across the sporting sector in Europe would be likely to reflect a reduction of around GBP 52 billion in GDP and a loss of over a million employees. This has been highlighted by the economic pressure exerted by the pandemic on elite basketball: “while the cost of the season resumption was reportedly \$150 million—and the league had lost more than \$1 billion in revenue due to the pandemic—restarting the season also saved the league ‘hundreds of millions’ in TV revenue and saved players \$600 million in salary” (Hindman et al. 2021). The closure of local venues and facilities in conjunction with fierce social distancing have led to the cessation of social and participatory sport in cities (Mastromartino et al. 2020). Professional sport and its competitive leagues also suffered via low cash influx without revenue from fans, such as gate receipts, concessions, merchandise, and sponsorships, although the worst losses came from decreased broadcasting. Although the NFL (National Football League) and its franchises managed to overcome the financial chasm left by the pandemic’s estimated but ongoing USD 6 billion impact, few other sporting organizations had either the reserves or state support to compensate for the losses. Sponsors have been damaged, especially those who rely on exposure from events, endorsements from players, and retail sales (Dašić et al. 2020). Adidas, for example, has closed all of its retail locations worldwide, and their sponsorship deals have crumbled in the void created by closing events and competitions (Skinner and Smith 2021). Following the COVID-19 pandemic lockdowns in 2020, many companies will not be able to survive without public support. Sport companies face a significant threat of survival from a single-year recession of 23%. This will impact massively on some of the policy proposals applied to the field of sport economics. For instance: (a) *Relief packages to boost the sport sector*: For the sport sector to be boosted during pandemics, short-term relief packages will be needed. In the UK, this was accomplished



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through the National Lottery. For example, the government and the National Lottery provided funding of GBP 195 million to the sport and physical activity sector in response to the pandemic, which ranged from providing financial support to local sports clubs to finding new and innovative ways to keep people active and reopen businesses after the pandemic (Kokolakakis et al. 2021); (b) *Tax Breaks*: Tax breaks for events that are major tourist attractions can indirectly boost tax revenues since sports are related to broader economic activities such as tourism and accommodation. Tax breaks can be a way to reinvigorate the sport industry (Sport England 2020); and (c) *Reinvesting Sport Related Budgetary Surpluses*: Numerous economic studies have shown that grassroots sport and consumer demand for sport contribute positively to public finances (Department for Digital Culture and Account 2018). Sport facilities that are inclusive and family-friendly can attract latent participants and be a motivating factor for non-participants. Supporting sports participation could be improved by government policy by reinvesting net broadcasting revenues in grassroots sports and by distributing funding from elite leagues to lower tiers. A higher number of participants, especially new ones who are more likely to purchase sports consumables, leads to a higher demand for sporting goods and services, leading to greater budgetary surpluses (Kokolakakis and Lera-Lopez 2020).

There also exists a fundamental need to examine the effects of prolonged quarantine on athletes' health and performance (Grazioli et al. 2020). It is evident that during a confinement period, it may be incredibly challenging for athletes to undertake routine training that would typically occur with teammates within a performance environment led by a range of coaches and scientific experts (Tayech et al. 2020). In professional basketball, researchers administered a six-question confidential survey to more than two hundred NBA players. Their research suggested: COVID-19 affected the NBA players' ability to maintain peak performance levels; NBA players displayed consistent levels of calmness during the pandemic, indicating excellent coping mechanisms; there was no indication of mental wellbeing being negatively affected by the pandemic; NBA players were in receipt of a variety of meaningful resources and support from their NBA franchises; NBA players' most prominent concern related to the uncertainty of returning to play; and, across a range of franchises, NBA players were maintaining fitness, connecting with friends and family, and researching business opportunities during time off. An argument was presented that COVID-19 is more detrimental than a traditional off season on physical performance (Grazioli et al. 2020). This research work on Brazilian professional soccer players found that body composition, counter movement jump (CMJ) and sprint performance were significantly impaired after sixty-three days of quarantine compared with a regular off-season period of twenty-four days. Substantial reductions were also found in certain physical capabilities, such as hamstring eccentric strength (i.e., ranging from 1 to 11% and from 2 to 27% of decreases in absolute and relative strength, respectively) and cardiorespiratory fitness (i.e., assessed through the YO-YO test for soccer, ranging from 1 to 21% of decreases in intermittent total distance). After five months of lockdown in the National Football League in 2011, Achilles tendon ruptures increased by 500% compared with the same period in regular seasons (Myer et al. 2011). Three key reasons have been identified as to why lockdown may be more detrimental: it does not reflect a traditional off-season due to the physiological and psychological restrictions of confinement; the following pre-season will be affected by congested preparation and, potentially, more susceptibility to injury; and, in a condensed preparation phase, the acute–chronic workload demands will directly increase risk injury (Bisciotti et al. 2020).

From a physiological perspective, quarantine and confinement can reflect an adverse element of detraining without the necessary support mechanisms for athletes. The physiological effects of detraining from the cardiovascular, cardiorespiratory, musculo-skeletal and miscellaneous perspectives have also been outlined (Mulcahey et al. 2021). A consistent practical implication for detraining is connected to negative changes in body composition and body mass. With an accompanying potential for impaired functional capacity of the neuromuscular and cardiovascular systems, this can in turn create a regression in strength,

speed, flexibility and endurance outputs (Bosquet et al. 2013). Research analysing the psychological impact of the pandemic has exposed a clear detrimental impact upon psychological health associated with social distancing (Taylor 2019). Disruption due to COVID-19 carries a clear psychological impact due to athletes having no previous experience of pandemic-caused confinement. Ultimately, “COVID-19 has significant physical and mental effects on athletes including physical deconditioning, altered sleep patterns, worsening nutrition, uncertainty on RTS and feelings of depression” (Pillay et al. 2020). A key focal point for elite coaches and athletes is the analysis of confined training methodologies. It has been argued that basic levels of physical activity during confinement could improve the athletes’ quality of life (Slimani et al. 2020). Research highlighted that training during home confinement tended to concentrate on strength, power, and muscular endurance exercises, general physical preparation (e.g., aerobic training on a range of ergometers), and stretching, amongst other isolation-limited activities (Tayech et al. 2020). As such, “countries, communities, and individuals must be prepared to cope in the longer-term with both the demands and the consequences of living with such essential containment and prevention measures” (Skegg et al. 2021). The broad aim of introducing COVID-19 preventative measures to athletes is to lower risk symptoms, prevent transmission, and limit the total numbers affected. Designed carefully, this will allow for the safe return to athletic participation whilst also minimising the number of COVID-19-related interruptions to training. This objective can assist in reducing any adverse physiological effects that may impair an athlete’s ability to return to pre-COVID-19 levels in the short and long term (Mulcahey et al. 2021). It is imperative that specific training and injury prevention programmes be developed, with careful load monitoring, in order to limit the decrement in physiological changes, both central and peripheral, of the aerobic system (Bisciotti et al. 2020). It has been suggested that athletes initiate a conservative approach, limiting training sessions to less than sixty minutes and at an intensity of less than 80% of the maximum ability during this time to prevent COVID-19 (Toresdahl and Asif 2020). Key research data indicate that enhancing balance training improves speed, strength and power (Makhlouf et al. 2018). Broadly speaking, athletes can use confinement to focus on the weaker aspects of their physical and psychological performance, completing relevant recovery activities to allow for super compensation. Global digital usage trends highlight the fact that there are 4.66 billion active internet users worldwide, which equates to 59.5 percent of the global population. Moreover, 92.6 percent (4.32 billion) access the internet via mobile devices. Further patterns in usage have increased during COVID-19 (Clements 2020). Elite athletes will need to embrace online digital platforms to enhance decision making and problem-based learning. In addition, social media can be used to disseminate knowledge and provide athlete and coach feedback whilst sharing positive messaging and behaviours. Finally, media education can be explored to frame the opportunities linked to COVID-19 confinement athletic training (Tayech et al. 2020). Appropriate sports nutrition improves performance, reduces fatigue, and limits the risk of illness and injury; it also allows athletes to optimise their training and recover more quickly (Thomas et al. 2016). A balanced, healthy diet is critical for the maintenance of immune function, especially important during COVID-19 confinement. It is critical that athletes consume foods rich in vitamins A, C, E, B6, and B12, zinc, and iron (Naja and Hamadeh 2020).

In conclusion, the pandemic has created financial burdens for sport providers and the media. COVID-19 has also impacted individual athletes’ potential to generate revenue and provide for their families. The risk of transmission has had a massive impact on sports performance for competitors and spectators. This has resulted in increased anxiety and social confinement. Further to this, the closure of venues and facilities has contributed to the decline in health of the general population. These scenarios need reversing urgently post pandemic to provide entertainment for spectators, revenue generation for sports organisations and the media, and increased health status for the general population.

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