

Challenges to Athletes During the Home Confinement Caused by the COVID-19 Pandemic

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ABSTRACT

The world is currently facing a serious coronavirus pandemic (COVID-19). This novel coronavirus is a new virus for which effective drugs and vaccines have not yet been developed. Amateur and professional athletic events around the world have been stopped, and teams and athletes have had to adopt social withdrawal measures, interrupting their training and preparation routines for competitions. Given this alarming scenario, this article aims to alert athletes to the importance of maintaining a conditioning routine during this confinement period.

BACKGROUND

The world is currently facing a serious coronavirus pandemic known as COVID-19. Effective drugs and vaccines have not yet been developed which increases the contamination and mortality rates. As of April 15, 2020 there were 2,544,792 confirmed cases and 175,694 deaths caused by COVID-19 globally (47). In addition to this high number, the virus curve continues to grow, with 73,657 confirmed cases and 6,689 deaths in only one day (based on reporting day

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#94) (47). These rates are being updated daily by the World Health Organization (see: www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/). However, actual figures may be higher because many infected people do not show symptoms, and there are insufficient detection kits to test all patients with mild symptoms, and those who die.

The COVID-19 virus can be transmitted by close contact through respiratory droplets (such as coughing) and by fomites (any inanimate object or substance capable of absorbing, retaining, and transporting contagious or infectious organisms) (27,34,46), and COVID-19 can persist on inanimate surfaces such as metal, glass, or plastic for up to 9 days if there is no inactivation by surface disinfection procedures (23,45). Given this alarming scenario, a strategy to effectively combat COVID-19 is to maintain physical distance from other people, a term commonly referred to as social distancing. Aside from containing the outbreak to prevent further spread of the infection, which would result in more deaths, recommended interventions include increasing the volume of tests performed on individuals suspected of having the disease, canceling events that generate agglomerations (mass gatherings), and restricting human mobility, the so-called

sanitary cordon (2,25). In this sense, authorities around the world have adopted different strategies, such as lockdowns, home confinement, and other restrictive measures, meaning a large number of people are required to remain at home.

The stoppage of amateur and professional athletic events around the world, including sports such as basketball, football, soccer, rugby, baseball, tennis, and recently the Olympic Games, illustrates that the sport world is also an important part in this scenario and has a fundamental role in the containment of this pandemic. As a result, those directly and indirectly involved with these events have been impacted. For example, sports managers must consider new dates for competitions; sports journalists and TV programs do not have events to broadcast; and stadiums are closed to fans. In this context, the training routines of a significant number of athletes around the world have been abruptly interrupted. This change causes serious damage to the quality and quantity of training, with further distancing of the athlete from the reality of their daily training in the traditional preparation sites and uncertainties about the future. Physical, technical, and

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psychological damage is inevitable. To the athlete, significantly reducing training and losing their physical performance capacity can mean loss of competitiveness in the return to competition. Thus, sports science professionals and scientists are challenged to help athletes deal with some of these relevant aspects during this period. This article aims to alert athletes to the need to maintain a conditioning routine during this period.

CONDITIONING TRAINING

At this time, maintenance of a training routine is important for physical health (4,14). Regular exercise helps to boost and maintain immunity (42), which is essential to reduce the risk of a viral infection. In this regard, maintenance of the specifics of each sport is recommended, respecting the technical and metabolic characteristics. It is not possible to create a single training routine to be applied to all sports. Thus, strength and conditioning professionals, within the current possibilities, should develop a training routine for their athletes. For example, weightlifters should try to maintain their training routine by performing competition and training moves (snatch, and clean and jerk), and powerlifters should try to maintain squat, bench press, and deadlift exercises. This is not always possible, and adaptations are required compatible with the reality of each athlete.

For nonathletes, it is suggested that activities of moderate intensity be prioritized (4). However, adopting this type of conduct for athletes of different modalities is not feasible because it does not respect the principle of specificity. There is an ongoing discussion about the impact of acute physical exercise on the immune system. Some evidence indicates that acute high-intensity activities can cause postexercise immunosuppression (exacerbated responses for redox status and white blood cell count, with some of these variables still elevated 24 hours after exercise) (21). Other evidence questions this postexercise immunosuppression and the “open window” hypothesis, indicating that there is limited reliable evidence to support the idea that vigorous exercise increases the risk of

opportunistic infections. In addition, changes to mucosal immunity after exercise do not indicate a period of immunosuppression. The sharp reductions in lymphocyte numbers and function after exercise reflect a transient and time-dependent redistribution of immune cells to peripheral tissues, which results in a heightened state of immune surveillance and immune regulation, and not an immunosuppression status (11). On the other hand, some evidence indicates that acute moderate-intensity exercise is immune-enhancing (e.g., enhances in neutrophil chemotaxis, spontaneous neutrophil degranulation, and neutrophil oxidative burst) (42).

Despite the ongoing discussion about the effects of the intensity of acute exercise, this pandemic period requires caution and a warning of the need for attention regarding the total intensity and total volume of the training sessions, so that the accumulation of training load does not generate disturbances in the immune system and/or signs of excess training load (e.g., skin irritation, sore throat, discharge of nasal mucus, and sleep disturbances) (8,12,20,42). Although it is likely that athletes will train less during the pandemic, some of them may increase the number of daily sessions to try to get around the stress of confinement. In addition, changes in routine, diet, and increased stress and anxiety can be factors that aggravate the recovery of athletes.

Another reason for staying physically active is to minimize the effects of detraining and to facilitate the return to a normal routine after the home confinement. In this pandemic period, competitions and sporting events are suspended, and the return date for many of these competitions is uncertain. Considering the negative economic impact of the pandemic, there is a chance that these events will resume a short period after the end of the home confinement. Therefore, it is important that the athlete does not have a sharp decline in physical fitness. In this sense, several studies have shown that periods without training induce reductions in aerobic fitness, muscle strength, muscle power, sprint

performance, flexibility, and physiological adaptations in athletes from different sports (18,22,24,32,33,35,36). Therefore, it is essential that athletes remain active to decrease the magnitude and speed of detraining, which should occur due to changes in training routines. In addition, attention should also be steered toward athletic fitness. Thus, it is important that athletes try to perform the technical movements of their sport, although this is limited in many cases (e.g., dependence on the opponent, such as team sports, need for equipment, or practice location, such as swimming).

Considering the possibility of a quick return to competition, strength and conditioning professionals and athletes need to pay attention in this period to an exercise routine, which will prevent injury after return to the normal sport calendar. A complete strategy for injury prevention at home should include mobility and flexibility, body weight exercises, core stabilization, balance, and proprioception (26,28). These functional training routines require simple equipment and not much space. Another option is follow the Fédération Internationale de Football Association (FIFA) 11+ prevention program adapted for the home environment. This protocol includes running, plyometric, strength, and balance exercises (41).

Another point to consider is that the detraining period can induce an increase in both body mass and body fat mass (24,35). Thus, this should be considered, since in addition to body fat having a negative association with physical performance (1,10); in many modalities, the athletes are divided into categories related to body mass (e.g., combat sports and powerlifting). Therefore, a sharp increase in body mass during home confinement may require athletes to drastically reduce their body mass before competing.

For the conditioning routine during home confinement, athletes can include exercises within their possibilities of physical space and available equipment (e.g., barbells, weight plates, dumbbells, kettlebells, and bands). In this case, if there is another family member using the same equipment, the cleaning of used

equipment, followed by disinfection using chemicals to kill the virus on the surfaces is an essential practice for the prevention of COVID-19 in households (13). Individuals tasked with cleaning and disinfection of equipment should be familiar with manufacturer recommendations (including virus kill times) for the products used. For those who do not have equipment, exercise routines without equipment (e.g., jogging, squats, burpees, push-ups, sit-ups, and stretching) may be good options. However, athletes should be aware of the intensity of the sessions and the state of recovery to avoid immunosuppression, which can be facilitated by mental stress. In addition, it is important to avoid prolonged periods of sedentary behaviors, such as sitting or lying time, and screen time (e.g., TV, cell phone, computer, and video games) during this home confinement.

Finally, athletes can take this period by studying the tactical aspects of the sport, the opponents, and themselves. After this home confinement, the interactions and specific tactical behaviors of the players may have decreased the autonomous stage learning (17). Therefore, in this period, athletes could improve their declarative tactical knowledge, such as match and performance analysis of their own team or opponents, besides visual search cues strategies (30,44).

MENTAL HEALTH

Daily conditioning training may also help to reduce tension and stress from home confinement as a negative life event affects the mental health of elite athletes (37,43). The abrupt change in their daily routine, the adopted home confinement measures, and uncertainty about the date for the return to activities can lead athletes to experience conditions that affect their mental health; such as external sources of distress, including financial problems, bad daily news, and internal sources of distress, such as worry about their performance when they return, and tension due to the routine change. This period can lead to negative feelings such as anxiety, depression, adverse behaviors, such as alcohol use and smoking, as well as eating and sleep disorders (5,6,9,19,31,39). In this

sense, to deal with these possible emotional concerns during the home confinement, coaches, strength and conditioning coaches, and athletes should pay attention to identifying and managing these experiences and seeking help and social support when necessary (16,43). Relaxation techniques, such as meditation, mindfulness, body scan, and deep breathing, are also recommended (7,29).

NUTRITION

Attention to the dietary habits of athletes during home confinement is of comparable importance to exercise. This period may represent a sedentary moment for athletes, leading to consumption of high calorie foods due to impulse or anxiety (37). In this sense, athletes should reduce caloric consumption. We recommend measures such as, if possible, reduction in macronutrient portion sizes; reduction, or even discontinuation, of the use of dietary supplements; prioritization of foods that can benefit the immune system (38); and avoiding ultraprocessed foods (40). In this sense, meals with an adequate protein intake, like meat or egg, sources of iron, zinc, and vitamin B12, with fruit and vegetables, sources of antioxidants, and vitamin C are recommended (35). Finally, athletes do not need to adopt restrictive diets during this period. In the case of uncontrolled food consumption, all efforts in the training area can be quickly lost, in addition to associations with poor diet and an increased risk of weight gain, injuries, and gastrointestinal problems (3,15,40).

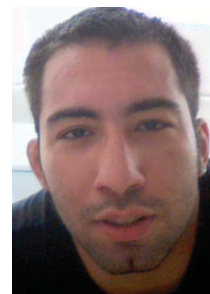
CONCLUSION

A conditioning routine can help athletes to boost and maintain immunity, minimize the effects of detraining, and facilitate the return to a normal routine, as well as improving tactical knowledge. In addition, attention to the mental health and dietary habits of athletes is needed in this period of home confinement. Strength and conditioning professionals, teams, and athletes who are able to adopt these measures will experience less difficulty when returning to their normal training and competition routines.

It is essential for sports science professionals to keep in mind the short- and medium-term challenges, with the

possibility of extended confinement times in several countries, with longer lasting restrictions on social contact, and negative repercussions for athletes and coaches. All scientific and technical efforts to minimize damage and provide safe guidance are important.

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