



# Volleyball and COVID-19 emergency: experience of a high-level Italian club team

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## Introduction

At the beginning of 2020, the world was distraught with a new invisible enemy: COVID-19 disease is the effect of SARS-CoV-2 infection, a new virus that suddenly changed our life. From the first cases reported to the World Health Organization (WHO) by Chinese national health authorities in the Wuhan city in the last days of 2019, this insidious disease has grown, causing a pandemic that paralyzed different human activities. Italy and especially the Lombardy region were seriously hit by COVID-19, causing high pressure on hospitals and intensive care; nurses and doctors from every specialization (surgeons, radiologists, orthopedics, dermatologists, etc.) in the main hospitals were rapidly converted to the front line against a new disease with unknown mid–long-term effect and consequences. Simultaneously, the Italian government—as the first one in Europe—took drastic measures limiting the daily life of everyone. Following the principles of “extra caution” and “stay at home”, a lot of aspects of our lives changed; among other things, amateur and high-level sports were interrupted. Volleyball is a very popular sport in Italy, and it is played by around 200 million people worldwide; its stop changed the life of athletes and many other people directly or indirectly involved in the Italian volleyball movement. What happened during this period effected everyone deeply. Consequences from social–psychological–economical points of view will affect

volleyball for a long time. Volleyball is considered a no contact sport, but contacts happen for greetings, exultations and accidentally during the game. SARS-CoV-2 typical transmission is through respiratory droplets passing from person to person. During the matches, the ball passes all the time from one player to another and could thus be considered a potential vehicle for the virus; on the other side, there is no evidence that the virus can be spread through sweat. Superlega, the male Italian volleyball first league, attracts a lot of people and fans. Main games could aggregate a large number of spectators; during the season 2018–19, a match brought together more than 12,000 spectators in the arena. Considering all these elements, the continuation of normal sport activities became incompatible with the COVID-19 pandemic. Nowadays, after a complex organization needed to restart there is a great uncertainty about prosecution of the new season. Such a complicated situation was characterized by the uncertainty of the measures taken by the governments of the various countries without homogeneous decision-making and rules [1]. It is clear that this global crisis has caused and will create major organizational, financial and social disruption to athletes, coaches, clubs and sports federations.

The aim of this manuscript is to share the experience of the medical staff of an Italian high-level male volleyball club in such a unique time. Remembering and clarifying what happened is necessary to plan carefully the future.

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## Beginning of the emergency—history

On February 23rd, the Italian Volleyball Federation suspended sport activity in three northern regions (Lombardy, Piedmont and Veneto). The day after, suspended all activities (amateur and high-level) all over the country until the beginning of March. Based on a new government ordinance, FIPAV planned the restart of every volleyball competition (match and practice) on March 2nd throughout the country,

excluding some towns in Northern Italy which were highly affected by COVID-19. The 10th return day of Superlega regular Season on March 8th was played in a particular way: no spectators, limited people participation (players, staff, managers, media, etc.), and all of them were checked for COVID-19 symptoms including body temperature. Two matches were suspended for medical reasons; the match in Milan was suspended because some participants showed a body temperature above 37.5 °C. The home club in accordance with its medical staff did not want to accept any risk of virus transmission. After being informed, the referees officially suspended the match. In this case, all players and technical staff members of the home team spent the following 14 days in self-isolation [2]. Three days later on March 11th, the WHO declared the ‘Pandemic state’ stating that all countries should focus on “urgent and aggressive action” to delay and mitigate the peak of infection. On March 13th, the 2020 Volleyball Nations League was suspended. On March 24th, the International Olympic Committee (IOC) President together with the Prime Minister of Japan decided that the Games of the XXXII Olympiad in Tokyo would be rescheduled to a date beyond 2020. On April 8th, FIPAV officially ended all Italian volleyball competitions without awarding the championship title or any promotions and relegations.

## Lockdown

With isolation, athletes changed completely their training and competition calendar; the lockdown could have a significant impact on the physical and mental state of volleyball players, but no previous evidence on this particular topic has been published. The athletes’ fitness state suffered by the absence of regular organized matches, practices, lack of coaches’ supervision, and inability to move freely. Luckily, the lack of sunlight exposure does not affect much volleyball players as they usually play indoor. High-level athletes are used to living far away from parents and family for long times during sport seasons, but in this scenario of pandemic, they reported a great mental fatigue. They were stressed, concerning themselves, and their loved ones. Inactivity causes an increase in body fat, impaired immunity, and psychic stress. Our medical and technical staff advise all the players to take advantage of their increased free time to contact support groups, plan the future, and work on their personal development. We know that they constantly kept in touch with family, friends, teammates and staff using technologies (video call, e-mail, telephone, text messages, social media). During the lockdown, it was very important for the medical staff to take care of the players who have undergone surgery, or injuries within the 6 months prior to the outbreak of COVID-19. To reduce the risk of COVID-19 exposure,

it was mandatory to minimize the access to reference rehabilitation centers and the contact with team doctors as they were working on the front line in the hospital. The athletes continued in their postoperative program monitored by doctors using different technologies including telemedicine. Patients took clinical photos or videos of the wound or affected articulation. The images were taken from an anterior–posterior and lateral view to elucidate any defect in range of motion or compensation. Images were obtained and preserved in the respect of the General Data Protection Regulation (GDPR n° 2016/679) that provides data privacy and security provisions for safeguarding medical information. A dedicated physiotherapist, wearing personal protective equipment (mask, glasses and gloves) and maintaining an interpersonal distance of 2 m, assisted at home athletes in the first steps of post-operative rehabilitation. The other players performed most of the exercises alone or they were assisted via webcam. To avoid the total or partial loss of the training-induced adaptation achieved through season training (detraining), submaximal exercises were given by trainers for the whole period; injured athletes performed the same workout according to their condition. The literature recommended training methods, which in case of normal detraining situations are resistance circuit-based training. They could be performed with simple equipment at home. In our team, submaximal, no plyometric, and low-intensity exercises without development of maximum oxygen consumption were chosen for a sum of different reasons: (1) by law, during this period, healthy people (no signs or symptoms similar to COVID-19) could not perform the test on nasopharyngeal swab and no serological exam was still available; (2) medical staff could not exclude the presence of asymptomatic players with SARS-CoV-2 in their team without a test; (3) basing on evidence and literature, we could not exclude that COVID-19 might generate consequences to organs such as heart, lungs, liver, kidneys and the immune system. Periods of prolonged inactivity like this induce a decrease of flexibility, and affect the anti-gravitational muscle groups, and the posterior extensor muscle chain. Therefore, players were asked to perform exercises to improve core-pelvic stability, and to maintain flexibility with a focus on spine and shoulders. No sport-specific exercises without ball were chosen to avoid traumatic injuries, and thus hospitalization to hospitals overwhelmed by people affected by the COVID-19 [1]. During this period, athletes had time to reset, perform recommended preventive protocols and take care about overuse injuries. During the emergency in Lombardy, the medical staffs combined team’s health supervision with their hospital practice; they take care of patients with COVID-19 addressing a disease far away from their habitual clinical practice. Players, technical staff, and club’s members sent support showing humility,

gratitude, and empathy. They showed an understanding for the team doctors' priority and the global situation. They sent support by contacting directly the medical staff, or indirectly using media and social media.

## Restart—future

On May 18th, Italy has started Phase 2 of the reopening, reducing some limitations and ending the lockdown. This stage is still focused on minimizing human-to-human transmission and avoiding the possibility of new spikes of infections. All over Europe, a great effort and a lot of money and energy are still being spent to try to control COVID-19 pandemic. The “stay at home” concept is turning into a “Test, Trace and Treat” concept [3]. Risk assessment and control measures are designed to reduce or minimize potential consequence of COVID-19 [4]. Mass gatherings such as crowded sporting events increase the risk of transmission of COVID-19 [5]. Certain types of moderate individual physical activity are promoted for beneficial effect on immune system and physical–mental health, but great debates are emerging on community sport and high-demanding professional sports. There is still no global standard plan to restart certain activities. Different ethical, economical, and logistic problems in the resumption of high-level sports are emerging. Young football and volleyball players have a low risk of death as a consequence of an infection by COVID-19 because of their young age, but everything should be done to avoid the risk of contamination because complication by disease could not be excluded; volleyball is a limited-contact sport but there are still different high-risk situations of virus transmission [1]. A lot of energy is being spent worldwide to better understand this new virus, but we still cannot exclude that COVID-19 can cause chronic health consequences [1]. Detraining affects different physiological systems reducing physical capacities and we do not know if there could be a synergy with a potential sub-clinic SARS-CoV-2 infection. Incidence rate of musculoskeletal injuries in volleyball ranges from 1.7 to 10.7 injuries per 1000 player hours and it is described that gender (male sex) and nature of activity (match) are risk factors. Considering these data, we understand how it is complicated to decide when public health care is ready to restart its usual support to the volleyball movement. In the new Superlega season, the following questions are crucial: Is social distancing possible in volleyball? How could we reduce or minimize the risk of transmission? Are there some sports more compatible than others with the COVID-19? While waiting for a vaccine, is it possible to reduce COVID-19 spread by adopting adequate

sport-specific protocols that recommend essential hygienic behavior along with screen testing each team? The challenge is to resume and continue a high-level sport such as Superlega, which inspires a lot of people, while putting the health of players, staffs and supporters first.

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## Compliance with ethical standards

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