International Journal of Risk & Safety in Medicine 33 (2022) 133–144
DOI 10.3233/JRS-227012
IOS Press

EU health co-design policies to counteract the COVID-19 pandemic effect promoting physical activity

Luca Zambelli*† and Francesco Pegreffi‡
Department for Life Quality Studies, University of Bologna, Bologna, Italy

Received 9 December 2021
Accepted 29 December 2021

Abstract.
BACKGROUND: The research is placed in the context of interdisciplinary medical-legal studies on the importance of promoting physical activity as a public health tool.
OBJECTIVE: The aim was to highlight the tools that can be used by EU members for planning interventions aimed at overcoming the consequences of the COVID-19 pandemic and for responding to a future crisis.
METHODS: First, the medical resources relating to the indirect and direct effects of the COVID-19 pandemic are analysed. Then, the results are compared with the measures of the EU bodies to verify the correspondence of the scientific arrests, with the political-regulatory interventions.
RESULTS: It was found that the prolonged closure of sports centres and the contagion from COVID-19 produce affects the body in a way that can only be recovered by motor activity. However, in the EU, there does not exist a regulatory harmonization about health issues that can directly impose the Members to implement their legislation to promote motor activity.
CONCLUSIONS: The signing of the Rome Declaration at the Global Health Summit on 21 May 2021 constitutes an important and concrete commitment for the exchange in the medical-scientific field, and for an effective co-design of intervention strategies for the relaunch of physical activity within projects such as EU4Health and the two-year HealthyLifestyle4All campaign.

Keywords: Physical activity, COVID-19 pandemic, prevention, co-design policies, Rome Declaration

1. Sport and preventive healthcare: A legal framework

Nowadays, athletic activity is globally recognized as a mean to reach collective and individual health, referring to it as defined in the Constitution of the World Health Organization (WHO): health is a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity, and it plays a role in the society, and it is involved in preventive healthcare too [1].

*Corresponding author: Luca Zambelli. E-mail: luca.zambelli5@unibo.it.
†Author of paragraphs n. 1, 4, 5.
‡Author of paragraphs n. 2, 3, 5.

To this effect, in these past years the World Health Organization has addressed various recommendations to the National States, underlying the importance of actions leading to the development of politics to spread and encourage physical activity for people of all ages.

In particular, the *Global recommendations on physical-activity for health* (WHO, 2010) have divided people in 3 different age groups (5–17 years, 18–64 years, over 64 years) and in the last recommendations the WHO has pointed out the chance to the European member states of a joint action to raise awareness of the risks of a sedentary lifestyle and the importance of health promotion, focusing on the consequences of the lack of physical activity, which can also affect the economy and the environment.

On November 26th 2013, the Council of European Union approved a recommendation on promoting health-enhancing physical activity across sectors–shortened as HEPA — (in Official Journal of the European Union c 354 of 04/12/2013), considering the huge benefits of physical activity in the lifetime, including regular sporting activity and physical exercise, such as reducing the risks of cardiovascular disease, preventing some kind of cancers and diabetes, improving musculoskeletal health, helping maintain body weight, and also positively impacting on mental health and cognitive processes.

In the Council recommendation it was also stated that there are huge discrepancies between Member States concerning physical activity levels. As a matter of fact, while on one hand some Member States have increased the proportion of citizens who meet the minimum level of recommended physical activity, making valuable progress in this direction, on the other hand many others have not registered an improvement, but actually a decrease in the percentage.

It can be said that current policies have so far not produced a decisive impact in reducing the physical inactivity levels for the European Union; HEPA policies must be implemented and developed.

2. The COVID-19 pandemic as healthcare experience to be analysed and shared to co-design preventive plans

Having now a background on the legal framework and aiming to international co-designed actions for the improvement and prevention of public healthcare, is also essential carry out an accurate and actual analysis from a medical perspective.

During the complex actions against the COVID-19 pandemic, the healthcare workforce has developed a great experience through an intense activity of research, which now becomes a precious and unforgettable scientific knowledge.

Nowadays, in what seems the final phase of the COVID-19 pandemic, thanks to verified measures (such as vaccination campaigns, protection rules, specific and effective laboratory tests, monitoring through new technologies, shareable digital certifications and green-pass), it is necessary a strict analytic evaluation of how the COVID-19 pandemic affects the health of individuals and communities.

2.1. Indirect effects

The indirect effects of the COVID-19 pandemic are to be found in lockdown, with an "obliged sedentary lifestyle" and consequently a lack of physical activity, not only for mere sport training, but also for the wellbeing. A situation that was also true before the COVID-19 pandemic, due to a widespread sedentary lifestyle and the poor promotion of a correct and healthy lifestyle among the population.

The renowned magazine Lancet defines this situation the "Pandemic of Physical Inactivity", with data suggesting that 31% of the world's population is not meeting the minimum recommendations for physical

activity, the global prevalence of inactivity reaching 17% and a growth of chronic health disorders related to inactivity (e.g., diabetes, hypertension, cardiovascular diseases), which exerts a substantial burden on societies and health systems [2].

If the restrictions and the shutdown, with their consequences, mostly affect who has not contracted the virus, literature shows multiple evidences that the patient who survives the acute phase of COVID-19 is doomed to deal with the consequences of multi-organ damage (that sometimes is not reversible), reducing the chance to come back to the prior physical level.

Psychic stress, rage, altered circadian rhythms play a negative role on the biological consequences caused by the sudden and obliged interruption of physical activity, which is globally recognized as a concrete way of prevention and health in the fight against the associated diseases.

Furthermore, scientific literature underlines how even a few days of sedentary lifestyle can interfere with the correct neuron-muscular and cardiac system functioning, inducing the loss of muscular tissue, of oxygen perfusion at tissue level, insulin resistance and alterations of the immune system [3].

This demonstrates that a sedentary lifestyle is an important risk factor for chronic diseases and for cardiovascular ones, in particular increasing the mortality rate [4].

Moreover, referring to frail subjects (patients with a chronic disease: diabetic, hypertensive, cardiopathic subjects), a regular physical activity reduces mental stress and the mortality rate for chronic disease in a proportional way [5].

Concerning the athletes in general, instead, the training interruption and the shutdown of the facilities at the same time must be taken into consideration: this is a factor that not only slows the frequency and the intensity, but also affects the essential training required to maintain the athletic performances. Literature shows with worries how practicing less sport even between 2 and 4 weeks causes an ultra-structural alteration; this functional biological adjustment is called “de-training effect” or “physical de-conditioning” and it is supported by the lack of adequate equipment and an inappropriate training plan [6]. These expressions are also used to describe the loss or reduction of physiological adjustments leading to the worsening of performances [7].

It can be certainly affirmed that the shutdown of sports centres forces the athlete to stay in the side-lines, not participating at all; a circumstance that compromises the quality of training in terms of regularity, frequency, and intensity [8]. Also, the psychological factor connected to the general sense of fear associated to the frustration to lose the physical performance, becoming weaker and less competitive, must be considered: this feeling causes alterations of the sleep quality, becoming a major factor for de-training [9].

Helpful considerations are those involving retraining, which is the re-acquisition of adjustments and performances lost during a detraining phase: what concerns is that the rebound of previous parameters is not as fast as their loss [10], although they are fully recovered in a shorter time than the initial conditions [11]. The above considerations, even though the experimentation is a few, are likely to be applied not only to men and women, but also to children and teenagers [12].

Some scientific studies highlight a reduction of aerobic capacity (4–6% of VO_2max) already tangible after 2 weeks of inactivity [13], while longer periods of inactivity increase the loss of aerobic capacity even further [14].

It is interesting to understand the effects on the musculoskeletal system, which is of great importance for an athlete. The system is characterized by a dynamic nature and an incredible biological plasticity, which allows the adjustments to various and different functional requests. When those requests are not sufficient to maintain the adjustments created by the physical activity, which is when the detraining is in action, altering both the structure and functionality of the muscles. The capillary density of the muscle,

the muscular fibres distribution, the cross-section, the arteriovenous difference of oxygen level and the myoglobin concentration, they all decrease after a few weeks of inactivity [15]. At the same time a rapid and progressive reduction of oxidative enzymes activity has been registered [16]. The metabolism too is not able to work properly during the training, with the musculoskeletal in activity burning carbohydrates rather than lipids; an insufficient training also results in a growth of the respiratory quotient (RQ) to maximal and sub-maximal intensity. The body's glucose tolerance and glucose reception are affected, with a quick and evident decline because of the reduction of insulin sensitivity and of GLUT4 transport activity (sensitive to insulin).

The activity of the lipoprotein lipase, the enzyme responsible for the deposit of body fat, decreases in the skeletal muscle, while increases in the adipose tissue, supporting the fat grows in this area.

The generic loss of cardiorespiratory performance, of metabolic efficiency and of muscle's breathing capacity leads to a fast decline of endurance in trained subjects. The strength and power muscular performance are also influenced by detraining. The size of this decline may vary from the athlete's training level, the length of the training before detraining, and from which specific muscular groups are trained [17].

It has been noticed that strength athletes who undergo to 2 weeks of detraining accuse a reduction of 3% maximal isometric leg extension strength. The lean body mass is kept for a shorter period in detraining from endurance rather than strength [18].

2.1.1. Direct effects

In some patients who were affected by the virus, once recovered from the interstitial pneumonia, could be frequent to develop pulmonary fibrosis ending with permanent alterations of the breathing system: in the short period it is one of the first factor to be considered as an effect on the athlete. Recovered from the acute phase of the disease, in fact, the consequences on the organs that were hit continue, and they can be sensed not only during a physical activity (which requires a high functional request), but also in the daily-life actions.

Among the consequences, scientific literature includes: the decreased respiratory function caused by lung damage, prolonged bedridden activity, weight loss and subsequent loss of lean body mass, general muscular deconditioning because of neglecting and emotional deficit.

In most cases it is a very complex situation that need a multidisciplinary medical recovering plan, involving different healthcare professionals: family physician, pulmonologist, orthopaedist, physiatrist, nutritionist and doctor in physical education; this team must be acknowledged in the new corona virus and its multi-organ consequences on short and long time.

To clearly evaluate the direct effects, it is fundamental to keep in mind which kind of patient affected by COVID-19 we are considering, in relation to the extent and the progress of the acute stage of the disease. We can distinguish between paucisymptomatic patients that are assisted in care facilities, patients recovered in pneumology or in infectious disease ward and were dismissed with light breathing deficit, and patients recovered in intensive care, often intubated, forced to bed rest and dismissed with severe breathing and neurological deficits. It is also very important, when considering direct effects on lungs, to consider the impaired motor function caused by bed rest. Examining the body apparatus involved by the COVID-19 effects, it is obvious that the athletes are severely concerned. The respiratory system represents the main target of SARS-CoV-2 infection and its primary mean of transmission [19].

The information became more relevant after a report of 72.314 cases from the Chinese Center of Disease Control; the disease can have different clinical scenarios, according to the spectrum of disease we have

3 groups: mild (81% of the cases) with no sign of pneumonia or a slight one, severe (14% of the cases) with dyspnoea, tachypnoea, PaO_2/FiO_2 ratio <300 mm Hg, and/or lung infiltrates >50% within 24 to 48 h, and critical (5% of the cases) with respiratory failure, septic shock, and/or multiple organ dysfunction or failure [20].

Despite our knowledge about the SARS-CoV-2 pathogenesis is still limited, we know that, besides the lung, another target is the hearth. Patients most at risk are those who already suffer from cardiac diseases, elderly people and those with cardiovascular factors, such as diabetes and hypertension [21].

Nevertheless, everybody is potentially vulnerable to cardiac complications, and, where present, they have a great prognostic and clinical importance. Through multiple and synergic mechanism, the virus has demonstrated its ability to cause - directly or not - a myocardial damage. Using its selective bond with ACE2 receptors, the SARS-Cov-2 could alter the signal, consequently damaging lungs and cardiac tissue, which are the areas where the enzyme is more spread [22]. This enzyme can be found on endothelial cells, so it is likely that the virus can also cause vasculitis of intramyocardial arterial vessels, leading to an ischemic damage. The myocardial damage can be indirectly traced back to the severe inflammatory systemic condition caused by the infection and connected to a cytokine storm [23], with a toxic effect on various tissues, including the cardiac one. The analyses of the data on Chinese hospitalized patients reveals that 8–12% of the patients turned up with myocardial damage and a relevant increase of mortality rate [24].

Scientific studies about SARS infection showed the important involvement of the musculoskeletal system, with direct consequences on muscles, bones, and joint complex [25]. It is also necessary to consider that the increase of ventilation time causes a pro-inflammatory situation that can lead to muscular weakness and bone fragility, reducing the quality of life [26].

2.1.2. Direct effects – long-COVID

Despite the lack of attention by the institutions, a key factor not to be ignored is the situation of patients that, once passed the acute phase of the disease, are moving to a complete recovery: this path is going to be long and difficult. Just imagine an athlete aiming to come back to physical activity.

Former experiences on SARS-1 infection, virus that has hit our country before, demonstrated how dismissed patients carried some handicaps for a long period of time. In many cases some deficits (mental, physical, cognitive) affected the patient for several years [27].

As the studies on COVID-19 recovered people grow, it appears clear that persistent symptoms on musculoskeletal system continued in a great number of cases.

The studies carried out on SARS infected patients, similarly to COVID-19 affected patients, show that patients, one year after hospitalization, still sensed fatigue [28]; in one research the 40% of patients stated that even after 4 years the sense of fatigue persisted [29].

Literature underlines that there is a correlation between the severity of acute symptomatology and the persistence of fatigue, but the link is still not clear, since fatigue cannot be associated with only one cause. Many researchers tried to study fatigue, but no one could find an objective definition for it. It is in fact a condition not definable, often confused with humour or sleep related diseases, and sometimes they just mix together. Recently a valid scheme to be used as a model has been proposed, aiming to better understand and measure post-COVID fatigue. This interpretative algorithm allows to define post-COVID fatigue, measuring the decrease of physical and psychological performance, due to external (i.e. environmental) and internal (i.e. psychological) factors [30].

To better understand the importance of post-COVID consequences and to contrast them, an analysis of the factors (central, psychological, and peripheral) connected to the rise of post-COVID fatigue is crucial.

First, the role of central factors in the genesis of direct consequences is scientifically demonstrated in papers that show how the SARS-COV2 pathogen is capable of spreading not only in blood but reaching also the nervous system [31].

It looks like the relationship between central factors and post-COVID fatigue could be determined by the invasion of the CNS by the virus with alteration of neurotransmitter levels (dopamine and serotonin), increase in intrinsic neuronal excitability, inflammation, demyelination and still more to be discovered [32].

As previously mentioned, the prolonged period of inactivity caused by the lockdown and closure of sports facilities, which plays a fundamental role if the correlated biological alterations described in numerous scientific studies, are to be considered as a worsening factor. In fact, the suspension of physical activity can cause a reduced excitability of motor neurons with consequent inhibition of their activity [33] and a reduction in the conduction speed found in quantitative studies with electromyography, can be considered additional factors in the determination of fatigue [34].

Continuing the examination of the factors related to persistent fatigue in patients who have overcome the infection, the psychological ones seem to have an adjuvant role in the genesis of persistent fatigue and are identified in stress, anxiety, depression, and fear are prevalent [35].

Finally, it is essential to investigate the role that peripheral factors play. The virus, in fact, appears to have the ability to infect a large variety of tissues with a unique potential to affect the muscle. The integrity of this musculoskeletal system represents the "*conditio sine qua non*" that allows the genesis of the motor act necessary not only to carry out daily activities, with low functional demand, but for sports at all levels. In the patient who has contracted the coronavirus and who are on the recovery path, a symptomatic constellation characterized by joint pain (arthralgia), weakness and muscle pain (myalgia) and an attitude to injury is found with very high frequency [36].

Another mechanism related to muscle suffering is the activation, by the coronavirus, of leukocytes in the lungs which, once activated, determine a cascade of cytokines including interleukin 6 (IL-6) [37]. The systemic increase in IL 6 levels can alter muscle metabolism, resulting in the loss and reduction of functionality. Therefore, the patient with COVID-19 myopathies are very common [38]. This aspect, associated with the intrinsic fragility that characterizes the elderly patient with chronic diseases or with age-related muscle mass reduction (hypotrophy, sarcopenia), represents a limiting factor in physical activity. An aspect that, added to the current restrictions, represents a substantial barrier for the large number of elderly people who carry out motor activities as a healthy lifestyle and who, if not correctly evaluated from a musculoskeletal point of view, may not be able to start over. Likewise, the athlete, having overcome COVID-19, during the re-training and recovery phase may no longer reach the previous level of performance, with a slowdown or even interruption of their sports career. A further justification for the persistence of post-COVID fatigue could also be the effect of the virus on adipose tissue through the ACE 2 receptor, which is also present on adipocytes. Precisely the hyperglycaemic effect [39], which can be noticed during the disease, allows you to suspect the reduction of glycaemic control with unfortunate implications in terms of increased mortality in diabetic patients, in which fatigue is more evident and remains. Also, in this case many ideas can be drawn about the evaluation and monitoring of diabetic athletes to whom we need to pay great attention.

3. How Europe has dealt or can deal with this issue

At the beginning of the COVID-19 pandemic in Europe, each country developed its own COVID-19 pandemic management strategies, and the European Union has faded in the background, despite the callings for a common and coordinate action in order to settle a shared strategy.

Referring to the sport sector, nonetheless, no concrete measure has been adopted for takes into consideration the complexity of the phenomenon and the ability of the COVID-19 pandemic to hit the sports industry on multiple aspects, as stated above.

To this account someone could object that, concerning sports, the European Union have competence to carry out actions to support, coordinate or supplement the actions of the Member States (art. 6 TEU) and that it has to exclude any harmonisation of the laws and regulations of the Member States, as it happens in the healthcare field [40].

In accordance with Art.165, clause 4 of TEU, on one hand the European Parliament and the Council shall adopt incentive measures, but on the other hand the Council, on a proposal from the Commission, shall adopt recommendations. However, the same article 165 TEU states that "The Union shall contribute to the promotion of European sporting issues, while taking account of the specific nature of sport, its structures based on voluntary activity and its social and educational function" (point 1), but also that the purpose or the EU concerning sports aims to "developing the European dimension in sport, by promoting fairness and openness in sporting competitions and cooperation between bodies responsible for sports, and by protecting the physical and moral integrity of sportsmen and sportswomen, especially the youngest sportsmen and sportswomen" (point 2); it also clearly expressed that "The Union and the Member States shall foster cooperation with third countries and the competent international organisations in the field of education and sport, in particular the Council of Europe" (point 3) [41].

In this context, the European institutions stepped in only with documents lacking legal relevance, therefore not binding. Specifically, we refer to the Resolution of the Council and of the Representatives of the Governments of the Member States meeting within the Council on the European Union Work Plan for Sport (1 January 2021–30 June 2024) 2020/C 419/01 and the European Parliament resolution of 10 February 2021 on the impact of COVID-19 on youth and on sport (2020/2864(RSP)).

Nevertheless, with these documents the EU has pointed out the path to be followed to guarantee the recovery of sports activity and to assure the protection of public health at the same time, through the recommendations sent to the Member States, the EU Commission and the sports industry.

If the Parliament and Council already felt the need for an engagement of the European Union, after the Global Health Summit of last 21 May 2021, with the European Commission's approval of the Rome Declaration during the G20, this need has been fully embraced by the EU.

Point 3 of Rome Declaration states the willing of G20 members to foster all-of-society and health-in-all policies approaches, with mutually reinforcing national and community elements, and promote responsibility at the highest levels of government for the achievement of better preparedness, prevention, detection, and response, aiming to give the best response to the COVID-19 pandemic crisis we are struggling with.

This means that the considerations and the recommendations of the two resolutions of the Parliament and the European Council are of a major importance, even though not legally binding. If on one side the Commission and the Members are not directly involved, on the other side it is clear that, having signed the Rome Declaration, they are trying to realize the aims fixed during GHS of May 21st 2021, following the strategies already highlighted into the resolutions in partnership.

4. About the two resolutions and other initiatives

Focusing on the analysis of the documents concerning matters mostly linked to the healthcare, it is evident that the main recommendations are to continue fostering national programs financing sports, in particular amateur sports; promoting the role of sport on the physical and mental wellbeing of citizens, especially during crisis; enhancing the cooperation between sports, economy, innovation and education to give citizens and athletes new opportunities to do physical activity, even though digital supports.

The European Commission is invited to share research and analyses on the impact of COVID-19 in collaboration with the Member States and to make them available to support the cross-sectoral cooperation.

The Resolution of the Council of 22 May 2020 n. 2020/C 419/01 considers as a priority the promotion of participation in sport and health-enhancing physical activity (point 10), establishing the following guiding objectives in the European Union Work Plan for Sport:

(a) Increase participation in sport and health-enhancing physical activity in order to promote an active and environment-friendly lifestyle, social cohesion and active citizenship.
(b) Intensify the dialogue and cooperation at EU level with the sport movement and other relevant stakeholders and institutions, both within and outside the field of sport and physical activity (point 9).

The goals are going to be pursued though:

– The "Creation of adequate opportunities for sport and physical activity for all generations" through Strategic development of sport and physical activity at local level and developing the place and impact of sport in Children's life.
– "Promoting Physical Activity" monitoring of lifelong physical activity, through cross-sectoral cooperation with relevant institutions (e.g., schools) and sport federations.

A first sign of commitment from the EU Commission related to these goals - not legally binding - can be seen with the launch of the campaign #BeActiveAtHome, on May 27th 2020, to inspire people doing physical activity and keeping active even at home. This campaign was brought back in winter 2020–2021 and in the campaign "HealthyLifestyle4All" too.

The European Parliament resolution of February 10th 2021 on the impact of COVID-19 on youth and on sport (2020/2864(RSP)) instead revolves around the psychosocial effects of the COVID-19 pandemic that affect young people's mental health and ability to socialize owing to both immediate and longer-term factors; whereas the lack of leisure activities and social constraints have a disproportionate effect on children and young people with disabilities (whereas E-H). Moreover, the isolation and the lack of a motivation, such as going to a place to do physical exercise - if not daily, at least a few times per week - are conditions that should not be underestimated: their influence not only on physical health and wellbeing, but also on the mental one. People can easily lose interest and their good habits to maintain psychophysical health if the facilities face a prolonged shutdown.

In addition, it must be considered the inability of schools to offer a proper possibility to do physical activity, due to distance learning: distance learning in physical education has led on the loss of its educational function and to a severe economic impact on the sports industry. According to the Conclusions of the Council and the Representatives of the Governments of the Member States meeting within the Council on the impact of the COVID-19 pandemic and the recovery of the sport sector 2020/C 214 I/01, the sport sector represents the 2,12% of the European GDP and the 2,72% on the whole level of European

employment, with almost 5,67 million of jobs. A direct cause of these effects can be found in the prolonged shutdown of sport centres, which led to a lack of sufficient possibilities of regular training, compromising the athletes' development [42].

It is also underlined that sports and physical activity are very important during the COVID-19 pandemic, since they strengthen physical and mental resilience, whereas the lack of physical activity have severe consequences for public health (point 14).

In accordance with the thesis described in this article, the Parliament encouraged the Council, in the next European Union Work Plan for Sport, to prioritize measures and actions aimed at helping the sector cope with the consequences of the COVID-19 pandemic in the short and long term (point 28), to consider important that event organizers, trainers and the athletes themselves should be made aware of the possible implications of the prolonged lack of intensive training (point 32). The resolution ends recognizing that enabling sports venues to reopen is essential for the health and well-being of our citizens and for economic recovery, both now and in the future (point 33).

Relating to this context, on September 23th 2021, the European Commission launched the biennial initiative HealthyLifestyle4All (HL4A); following the Tartu Call for a Healthy Lifestyle of 22th September 2017, the campaign is designed to link sport and active lifestyles with health, food and other policies. The EU Commission has declared that in this period will increase the financial support for projects that aim to a healthy lifestyle in relation to Erasmus+, Europe Horizon and EU4Health. For the years 2021–2027, 470 million of Euros will be allocated for initiatives concerning sport for Erasmus+, 290 million of Euros for Europe Horizon and 4,4 million of Euros for EU4Health, as stated in the Regulation (EU) 2021/522 of 24 March 2021. The first resources have already been allocated following the work program referred to in Implementing Decision no. C (2021) 4793 of June 24th, 2021. This program precisely supports Member States' actions in health promotion and disease prevention throughout the lifetime of an individual and by addressing health risk factors, such as obesity, unhealthy diets, and physical inactivity (point (a) of Article and Annex I, point 1, letter (e)).

5. The COVID-19 pandemic as healthcare experience: Aspects to be shared for an effective co-planning

Having a complete and clear overview of direct and indirect effects, supported and confirmed by a fair amount of scientific literature, it is crucial to investigate, both on the legally and health sphere, on people who continue to have symptomatology despite recovering from COVID-19. Redefining the concept of "recovery from COVID-19" is a primary concern: it is necessary to distinguish between laboratoristic recovery, meaning that there is zero viral activity, and the immunological competence has been acquired, and clinical recovery, meaning a complete remission of symptom constellation.

The existence and continue growth of a group of individuals, whose daily-life and working quality is constantly reduced because of a symptomatology, despite laboratoristic and radio-diagnostic silence, must be recognized and become a priority subject and the keystone of new projects.

From a healthcare perspective the constant study and the precise definition of the virus effects should aim to an unmistakable classification, shared both by the healthcare and the legal sector, that can be regarded as a common denominator by all European countries and be the solid base to set a measurable, reproducible, and applicable healthcare plan.

This can be considered likeable nowadays thanks to the newest integrated technologies, both during the diagnostic phase and the big data sharing through technologies such as telemedicine and 5G, which

use has been learned during this state of emergency still going on. With this tool and the development of new socio-health and legal professionals, it will be possible to define efficient national and European healthcare plans, guaranteeing a borderless continuity of care and healthcare protection.

From this point of view, the signature of Rome Declaration by the European Union represents an important commitment to promoting an integrated and coordinated approach between the Member States. Even though it cannot be defined as an act towards legal harmonization, it will surely be effective through strategies, data sharing platforms, scientific research communities and supporting programs, especially focusing economic recovery to help sport organizations and national organizations, such as schools, who will take the opportunity and the importance for a restart and a new planning of the sport sector.

Conflict of interest

None to report.

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