

# Advanced Imaging Digest

## Cardiac concerns for athletes Return to play

### Introduction

Imaging plays a pivotal role in the diagnosis of some COVID-19 complications. Given the large number of individuals affected by the virus, the use of outpatient imaging to monitor these complications may increase.

Currently, the available literature for follow-up imaging of COVID-19-related complications is limited. Recommendations are generally determined by the actual complication, regardless of COVID-19 being the underlying cause.

We are monitoring new literature and data as they emerge.

### Asymptomatic athletes

Athletes recovering from COVID-19 who want to return to play (RTP) is a concerning subpopulation. The effects of prolonged strenuous exercise can promote arrhythmias. With COVID-19, if underlying myocardial inflammation is present, the effects can be catastrophic.

The potential cardiac risk for recovered athletes is based on data indicating a higher than expected incidence of myocardial inflammation in recovered non-athletic and athletic populations; however, current recommendations per a consensus document for screening athletes post COVID-19 from The American College of Cardiology do not include testing asymptomatic athletes prior to RTP.

Apart from the concerns about myocarditis, studies have found the routine use of echocardiography in asymptomatic post-COVID-19 patients has not proved useful. One study of 100 consecutive patients found that the most common pathology was right ventricular (RV) dysfunction, which was assumed to be due to lung problems, with 32% having normal echocardiograms at baseline. Left ventricular (LV) systolic dysfunction was only 10%, and diastolic dysfunction was 16%. This may provide direction for echocardiographic assessment for those with persistent symptoms of LV or RV dysfunction, rather than for all asymptomatic post COVID-19 infections.

### Symptomatic athletes

Symptomatic athletes, once they are no longer infected, may be first evaluated by electrocardiogram (EKG) and blood (troponin) tests to search for rhythm abnormalities or signs of myocardial injury. Unfortunately, due to the low sensitivity of these tests, neither may be abnormal. Echocardiography (echo) for these athletes prior to RTP is thought to be the primary diagnostic tool.

If the athlete exhibits borderline ejection fraction or new/persistent symptoms during physical exertion, exercise testing/stress echo should be considered. If the athlete has persistent limiting symptoms, sustained troponin elevation, EKG changes or echo abnormalities (LV systolic or diastolic, RV dysfunction or more than trivial pericardial effusion), cardiac MRI should be considered.

Exercise testing should also be performed on athletes with established COVID-19–associated myocarditis after a convalescence period of three to six months as part of risk stratification. For persistent chest pain in athletes, as well as others who have had COVID-19, a coronary computed tomography angiogram (CTA) is recommended to rule out coronary disease or pulmonary embolism. Nuclear imaging should be reserved for specific scenarios where first-line imaging (echo, CTA and cardiovascular magnetic resonance) is suboptimal or contraindicated.

### Conclusion

The COVID-19 pandemic has placed significant strain on the medical system, including imaging utilization. As the literature on the effects of COVID-19 complications evolves, so will the recommendations on the potential need for and duration of follow-up for these complications and the extent to which COVID-19 becomes an independent risk factor in imaging utilization.

### About the authors

**Dr. Martin Yussman, physician clinical reviewer, cardiac, Magellan Healthcare**

Dr. Yussman, a cardiologist with over 16 years of experience, joined Magellan in 2016. He earned a Bachelor of Arts degree from the University of Wisconsin-Madison and completed his training in internal medicine and cardiology at the University of Cincinnati. During his training, he researched cardiomyopathy and is currently investigating the relationship of the heart to inflammation and autoimmunity, specifically as it relates to diabetes and COVID.





**Rosalind Watman, D.O., medical director, cardiology, medical specialty solutions, Magellan Healthcare**

Dr. Watman, a board-certified cardiologist with over 30 years of experience, joined Magellan Healthcare in 2014 as a senior physician reviewer. In her role, she trains new physicians in the appropriate utilization of cardiac studies. She is also involved in the creation and implementation of cardiac guidelines and collaborates with health plans and providers to ensure high-quality patient care.

**Reference**

Kim. J., Levine B., Phelan, D., et. al. Coronavirus disease 2019 and the athletic heart: Emerging perspectives on pathology, risks, and return to play. *JAMA Cardiol.* 2021;6(2):219–227. doi:10.1001/jamacardio.2020.5890