

24 February 2022

Team Singapore Athletes

Return to Play for Competitive TeamSG Athletes Recovered from COVID-19 infection

Introduction

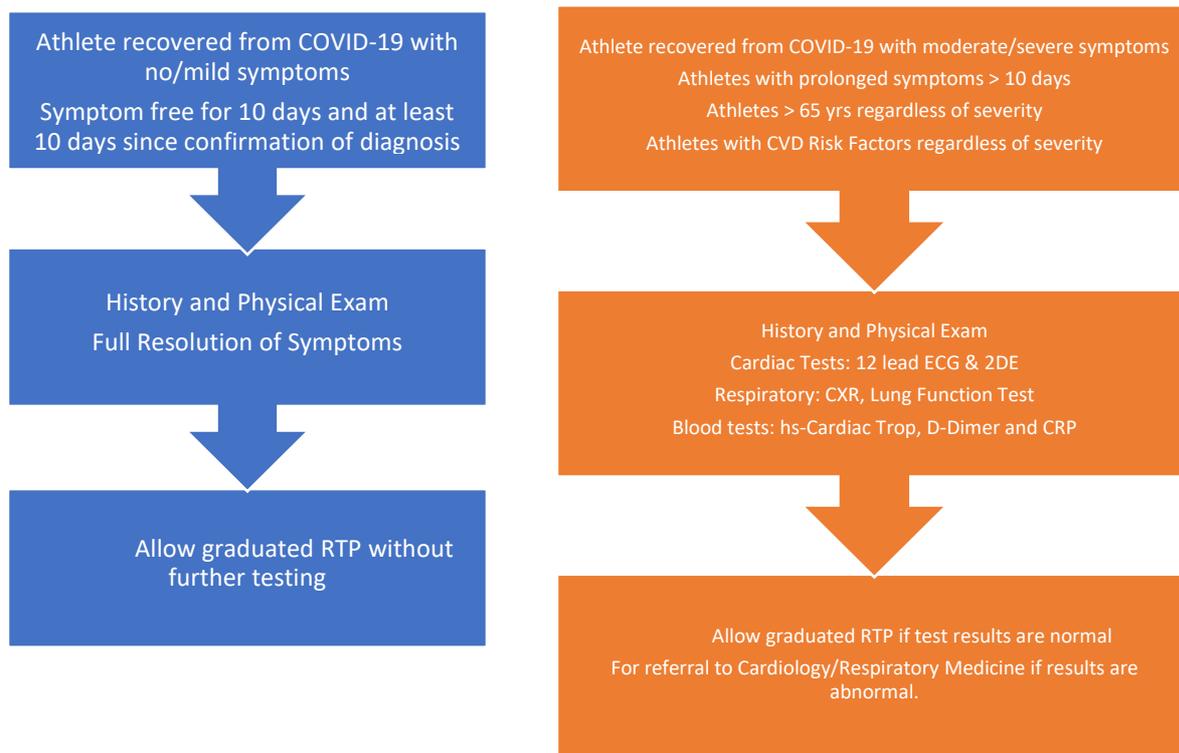
The first case of COVID-19 was reported in Singapore on Jan 2020¹. Since then, there have been more than 320,000 cases diagnosed in Singapore as of Jan 2022². COVID-19 is a systemic disease, affecting the endothelium, with a potential to affect all organs, especially the heart and lungs. Reports have indicated that COVID-19 athletes may have persistent and/or residual symptoms, such as cough, fatigue and tachycardia, ranging from weeks to months after initial infection³. Cardiac injury has also been reported in >20% of patients hospitalized with moderate and severe COVID-19 infection, while the incidence among those with mild and asymptomatic patients is unknown, but likely to be low^{3,4}.

In this guideline, we base our recommendations for safe return to play (RTP) for TeamSG athletes on a comprehensive clinical evaluation, and is built on the recommendations by Kim, et al. 4. It should be noted that elite athletes place a high demand on their cardiorespiratory system, which are most affected by COVID-19, and utmost care should be taken to ensure the athletes 'safe RTP.

Return to play after COVID-19 for TeamSG athletes

1. All athletes who have been diagnosed with COVID-19 should be reviewed by a Sports Physician prior to graduated RTP.
2. All athletes with COVID-19 should be considered for graduated RTP only after at least 10 days from date of confirmation of diagnosis and at least 10 days (14 days if hospitalised) after symptom resolution, **without** medications.
 - a. A thorough clinical assessment with medical history and physical examination, considering other potentially affected organ systems (Neuro, GI, etc), should be done.
 - b. During this assessment, presence of chest pain, dyspnoea, palpitations, exertional dizziness, syncope, tachycardia, adventitious lung sounds and extra heart sounds must be checked for.
3. Athletes with no symptoms or only mild symptoms [including anosmia, ageusia (loss of taste), headache, mild fatigue, mild upper respiratory tract illness, and mild gastrointestinal illness] during the illness period can be allowed to gradually RTP without further testing. This is provided that they have had full resolution of symptoms for at least 10 days, and at least 10 days symptom onset. Further cardiovascular testing, including ECG and echocardiography may be considered on an individual basis.
4. The following groups of athletes will require further tests before being allowed to RTP.
 - i. Athletes with moderate or severe symptoms (including persistent fever, chills, myalgias, lethargy, dyspnoea, pneumonia, and chest tightness)
 - ii. Athletes who were required to be hospitalised for COVID-19 infection
 - iii. Athletes who have protracted symptoms of more than 10 days.
 - iv. Athletes > 65 years old regardless of severity of symptoms.

- v. Athletes with cardiovascular disease (CVD) risk factors (including hypertension, coronary artery disease, atrial fibrillation, hyperlipidaemia, smoker and diabetes), regardless of severity of symptoms.
- a. Tests required are as follows:
 - i. Cardiac tests: 12-lead ECG and 2D-echocardiography must be ordered and referral to Sports Cardiologist be made if there are any abnormalities.
 - ii. Respiratory tests: CXR for persistent pneumonic change, and Lung Function Test to check for possible post-infection airway dysfunction.
 - iii. Blood tests: hs-Cardiac Troponin, D-Dimer (for possible thromboembolic cause) and CRP (for multi-system inflammatory syndrome, especially in children)
- b. Graduated RTP can be allowed if tests are normal.
- c. Referral to the Sports Cardiologist or Respiratory Physician should be made as appropriate if tests are abnormal.



Graduated return to play (RTP)

Graduated RTP enables the athlete to return to sports in a stepwise manner. This protocol is based on the work of Elliott, et al. 5.

1. Athletes must be able to complete activities of daily living and walk 500m on flat grounds without excessive fatigue or breathlessness
2. Less aerobically intense sports may progress faster, although experience suggests that some athletes may take up to 3 weeks to recover.
3. If athletes develop symptoms such as excessive fatigue or muscular pain, they must return to the previous stage and progress again after a minimum of 24 hours period of rest without symptoms.
4. If athletes should develop cardiovascular symptoms including chest pain, dyspnoea, palpitations, exertional dizziness, or syncope, they must stop training and be reviewed by a Sports Physician for further evaluation.

	Stage 1	Stage 2	Stage 3A	Stage 3B	Stage 4	Stage 5	Stage 6
Period	10-14 days from diagnosis/resolution of symptoms	Min 2 days	Min 1 day	Min 1 day	Min 2 days	Earliest Day 17	R e t u r n t o c o m p e t i t i o n i n S p o r t s S p e c i f i c T i m e l i n e s
Activity	Min rest period	Light activity	↑Freq	↑Time	↑ Intensity	Resume	
Exercise	ADLs	Walking, Light Jog, no resistance training	Simple movement activities	Progression to more complex training activities	Normal training activities	Resume normal training progression	
% MHR	Resting HR	<70%	<80%	<80%	<80%	Resume normal training progression	
Training Duration	Nil	<15min	<30min	<45min	<60min	Resume normal training progression	
Objective	Allow time to recover to protect CVS	Increase heart rate	Increase load gradually, manage any post viral fatigue symptoms	Exercise coordination and skills	Restore confidence and assess functional skills	Resume normal training progression	
Monitoring	Subjective symptoms, resting HR	Subjective symptoms, resting HR, RPE	Subjective symptoms, resting HR, RPE	Subjective symptoms, resting HR, RE	Subjective symptoms, resting HR, RPE	Subjective symptoms, resting HR, RPE	

References

1. Goh T, Wei T. Singapore confirms first case of Wuhan virus; second case likely. *Health News & Top Stories The Straits Times* 2020
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3. Wilson MG, Hull JH, Rogers J, et al. Cardiorespiratory considerations for return-to-play in elite athletes after COVID-19 infection: a practical guide for sport and exercise medicine physicians. *British journal of sports medicine* 2020;54(19):1157-61.
4. Kim JH, Levine BD, Phelan D, et al. Coronavirus disease 2019 and the athletic heart: emerging perspectives on pathology, risks, and return to play. *JAMA cardiology* 2021;6(2):219-27.
5. Elliott N, Martin R, Heron N, et al. Infographic. Graduated return to play guidance following COVID-19 infection. *British journal of sports medicine* 2020;54(19):1174-75.

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