



Recommendations for Primary Care Providers Regarding Post-COVID-19 Return-to-Play (RTP) for Pediatric Athletes & Patients

Background:

- This document was prepared as a practical reference for primary care providers by a consortium from University of Michigan faculty at C.S. Mott Children's Hospital and Central Michigan University faculty at Children's Hospital of Michigan.
- Recommendations for return-to-play (RTP) for young athletes are evolving based on observation of RTP in COVID-19 positive athletes. These recommendations are based on current expert opinion of leading sports cardiologists and are subject to change as more data become available.
- An *athlete* is considered here as one participating in organized sports at any level. However, these recommendations can also be applied to patients participating in regular high-intensity activities.
- Most young athletes experience asymptomatic or only mildly-symptomatic COVID-19 infections.
- The protocol for return-to-activities will vary based on severity of infection, time off from exercise/activities, pre-COVID-19 level of activity and whether there is a pre-existing medical condition.
- Similar to RTP after concussion or mono, amount, type and intensity of activity should be gradually increased. In regards to COVID-19, this gradual RTP should be over at least 7 days and ideally be under direct supervision, if able. One can consider this like an orthopedic injury: Rest, recover and gradual RTP.
- Given possible restrictions to in-person office visits, it is reasonable to consider a virtual visit. Follow up visits should focus on assessing the severity of COVID-19 infection, confirming cessation of symptoms, and screening for cardiovascular symptoms. Additionally, gradual RTP guidance should be covered as well as anticipatory guidance with specific focus on red flag/cardiovascular symptoms (see Red Flag section below).

Isolation recommendations:

1. **Isolation:** Isolation is 10-days from positive-test date. (Considered from test date, as some athletes may adjust start date of symptoms to return to play sooner.) During isolation those with COVID-19 should not participate in exercise.
2. **After Isolation:** Similar to recommendations for other viral infections, RTP should be gradual. Current guidance for RTP clearance after COVID-19 includes following the CDC recommendations for isolation followed by gradual return-to-exercise based on recommendations below.

NOTE: The CDC defines isolation as separating someone who has been infected away from others and quarantine as separating a potentially exposed person away from others to see if they become sick ([referenced here](#)).

Definition of COVID-19 infection severity:

- **Asymptomatic illness:** Positive COVID-19 test with no symptoms.
- **Mild COVID-19 illness:** Symptoms can include fever (oral $\geq 100.4F$) for 3 days or less, fatigue, loss of smell/taste, nausea, vomiting, diarrhea, headache, cough, congestion, sore throat.
- **Moderate COVID-19 illness:** Symptoms can include persistent fever (oral $\geq 100.4F$) for more than 3 days, chills, body aches, loss of smell/taste, significant lethargy/fatigue, cough, hypoxia, pneumonia, shortness of breath, chest pain, chest tightness.
- **Severe COVID-19 illness:** Those who required hospitalization, or had abnormal cardiac testing during the acute infection, or had multisystem inflammatory syndrome in children (MIS-C).

Specific recommendations based on severity of COVID-19 infection:

1. **For asymptomatic or mild cases of all ages**
 - a. Isolation for 10 days from positive-test date.



- b. For mild cases, recommend contacting PCP to determine need for follow up. Consider virtual visit, if needed.
- c. For both asymptomatic and mild cases review anticipatory guidance regarding red flag signs and symptoms.
- d. During RTP after isolation, monitor for possible cardiac and lung-related symptoms.

2. For moderate cases 12 years and younger

- a. Isolation for 10 days from positive-test date.
- b. Must be at least 10 days asymptomatic before starting RTP. (The symptom of loss of smell and/or taste may take longer to resolve and should not preclude RTP).
- c. Follow up assessment with PCP should be done prior to starting RTP. Consider virtual visit, at which time can further triage if in-person visit is needed.
- d. Review anticipatory guidance regarding red flag signs and symptoms.
- e. During RTP after isolation, monitor for possible cardiac and lung-related symptoms.

3. For moderate cases 13-18 years

- a. Same as moderate cases 12 years and younger with the addition of:
- b. Consider referral to pediatric cardiology prior to RTP, depending on type of sport, level of competition, and degree of COVID-19 symptoms.

4. For severe cases or MIS-C cases of all ages

- a. ALL patients should be evaluated by pediatric cardiology prior to starting gradual RTP.

Red flag symptoms and physical exam findings:

1. Concerning symptoms may be during infection, during resolution or after infection.
2. Recommend reviewing red flags as anticipatory guidance upon diagnosis of COVID-19 and at follow-up prior to starting RTP.
3. Development of any of these symptoms should result in stopping activities, discussion with PCP and possible referral to a pediatric cardiologist.
4. Red Flag symptoms include:
 - a. Chest pain
 - i. concerning features for cardiac involvement include pain that gets worse with supine position or is associated with exertion, palpitations, shortness of breath, or syncope/dizziness.
 - ii. reassuring features (suggesting non-cardiac chest pain) include pre-existing or longstanding pain, pain reproducible by palpation, pain located exclusively in axillae, and soreness related to coughing.
 - b. Dyspnea
 - c. Palpitations
 - d. Syncope/Dizziness
 - e. Edema
 - f. Persistent or recurrent fever, vomiting or diarrhea
 - g. Significant ongoing fatigue
 - h. Features of MIS-C in the 4-6 weeks post COVID-19 infection
5. Physical exam findings include new-onset murmur, tachycardia, tachypnea, pericardial rub, crackles, hepatomegaly, edema.



References:

1. American Academy of Pediatrics. (Dec. 2020). COVID-19 Interim Guidance: Return to Sports. Retrieved from <https://services.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/clinical-guidance/covid-19-interim-guidance-return-to-sports/>
2. United States Centers for Disease Control and Prevention. (2020). Coronavirus Disease 2019 (COVID-19): Considerations for Youth Sports. Retrieved from <https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/youth-sports.html>
3. Dean, P. N., Jackson, L., & Paridon, S. M. (July 2020). Returning to Play After Coronavirus Infection: Pediatric Cardiologists' Perspective. (1), 1–6. Retrieved from <https://www.acc.org/latest-in-cardiology/articles/2020/07/13/13/37/returning-to-play-after-coronavirus-infection>
4. Elliott, N., Martin, R., Heron, N., Elliott, J., Grimstead, D., & Biswas, A. (June 2020). Infographic. Graduated return to play guidance following COVID-19 infection. *British Journal of Sports Medicine*. <https://doi.org/10.1136/bjsports-2020-102637>
5. Kim, J. H., Levine, B. D., Phelan, D., Emery, M. S., Martinez, M. W., Chung, E. H., ... Baggish, A. L. (October 2020). Coronavirus Disease 2019 and the Athletic Heart: Emerging Perspectives on Pathology, Risks, and Return to Play. *JAMA Cardiology*, 1–9. <https://doi.org/10.1001/jamacardio.2020.5890>
6. Phelan, D., Kim J.H., Elliott, M.D., ...LaGerche, A. (December 2020). Screening of Potential Cardiac Involvement in Competitive Athletes Recovering from COVID-19. *JACC: Cardiovascular Imaging*, <https://doi.org/10.1016/j.jcmg.2020.10.005>

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Recommendations based on expert opinions, dated Dec. 15, 2020*. Also see our:

- [Return-to-Play \(RTP\) for Pediatric Athletes & Patients – ALGORITHM](#)
- [Suggested Post-Covid-19 Gradual Return-to-Play Progression](#)

*Recommendations are subject to change – see www.mottchildren.org/COVIDUpdate for updates and additional information.