Return to Play Following Covid-19

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RETURN TO PLAY: COVID-19

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FAMILY MEDICINE CLERKSHIP
SEPTEMBER 2022
MENTORS: DAVID REISMAN MD, WHITNEY CALKINS MD
COVID-19

- July 11-17 2022 – 6.3 million new cases of COVID globally & 11,000 fatalities\(^1\)
- At time of publication, 559 million confirmed cases & 6.3 million deaths globally\(^1\)
- Some studies have shown the prevalence to be significantly greater in adolescents\(^2\)
- New variants, vaccines and treatments make COVID a dynamic and emerging health challenge
- COVID has affected the ability for sick adolescents to attend school, and also participate in sports
- Return to play guidelines directly impact the speed in which adolescents are approved to return to sports. This affects the physical and mental health of a large population of young athletes.
PUBLIC HEALTH COSTS/RISKS ASSOCIATED

• **Detraining** - marked decline in maximal oxygen consumption ($ VO_{2\text{max}} $), the loss of the recently acquired gains in term of endurance capacity, and, more importantly, to a loss of muscle strength and mass. Such a reduction in skeletal muscle activity could significantly increase the risk of injuries both in non-contact and contact sports – leading to increased sedentariness of athletes and burden on the healthcare system.\textsuperscript{3,4, 5}

• **Diagnostic Testing** - COVID infection in young competitive athletes is associated with a low risk of cardiac complications and clinical events in short-term follow-up – suggesting limited need for expensive diagnostic tests, that not only stress the healthcare system but keep athletes sedentary for longer.\textsuperscript{6, 7}

• **Mental Health** – COVID was proven to have a negative effect on depressive symptoms and life satisfaction in adolescents. Given physical activity as a healthy emotional outlet for adolescents, excessive time away from sport could exacerbate such harmful outcomes.\textsuperscript{8}

• **Financial Impact** – 2020 saw a 9.7% increase in total national healthcare spending, raising it to $4.1 trillion.\textsuperscript{9}
COMMUNITY PERSPECTIVE - DOCTOR

On Return to Play following COVID in UVM Team Athletes:

• We are ordering EKGs and troponin for reassurance and adding the ECHO on an as needed basis. We are NOT ordering routine ECHO’s for moderate symptoms due to cost, and access plays a factor for many patients as well. It can take a long time to get on the ECHO schedule. For people that have lingering symptoms the RTP timeline needs to be longer. You can repeat each stage (do it twice) or make it longer depending on the context. We require a negative rapid antigen test prior to reentering the athletic environment days 6-9 post COVID. That is a bit different than how it might be done some places.

- Matt Lunser DO – UVM Team Physician
COMMUNITY PERSPECTIVE - PATIENT

- It was frustrating to have Covid and want to return to racing but have to wait for a doctor’s appointment to be cleared first. I am healthy and have not had serious complications in the past, so it didn’t feel like I was at risk. Once I finally had my appointment, it was not totally obviously what things about my health I was being evaluated on. I wish I had gotten back to racing earlier and that I could have been more involved in my healthcare evaluation.

- Josh Chu, UVM Cycling Team Captain and Category 1 Competitive Cyclist
INTERVENTION AND METHODOLOGY

Athletic trainers, triage nurses and family medicine doctors frequently are the first to evaluate sick adolescents and talk to patients and their parents following COVID. It is important all members of the healthcare team are using the same set of guidelines to evaluate their return to play and that easy-to-understand guidelines are used so that patients and their parents may engage in shared decision making.

- Disseminate the clearest most up to date set of return to play guidelines to physicians and triage nurses to use.

- Distribute to adolescents on sports teams and their parents to increase transparency in the return to play process and raise awareness of red flag symptoms that may impact long covid/other complications.

- Using evidence-based research and the most up to date guidelines to avoid unnecessary diagnostic testing that have lengthy times to schedule (especially in Burlington) and may result in athletes being out of play and deconditioning for longer.

- Emphasize the key points of the current return to play guidelines, and acknowledge where to find changes to these guidelines given this is a “moving target”.

- Aim to increase health literacy among adolescents by supplying a diagram usable by physicians and patients alike.

- Encourage the 4 key habits of athlete centered return to play: empowering athletes, engaging them, provide longitudinal feedback, and endorsing transparency.11
RESULTS

- British Journal of Sports Medicine guidelines in an easy to digest staged diagram with accompanying “red flag signs” distributed to healthcare providers, coaches and trainers.\(^{12}\)

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**GRADUATED RETURN TO PLAY PROTOCOL UNDER MEDICAL SUPERVISION**

<table>
<thead>
<tr>
<th>STAGE</th>
<th>ACTIVITY DESCRIPTION</th>
<th>EXERCISE ALLOWED</th>
<th>% HEART RATE Max</th>
<th>DURATION</th>
<th>OBJECTIVE</th>
<th>MONITORING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Minimum rest period</td>
<td>Walking, activities of daily living</td>
<td>&lt;70%</td>
<td>5 days</td>
<td>Allow recovery time, protect cardio respiratory system</td>
<td>Subjective Symptoms, resting HR, I-PRRS, RPE</td>
</tr>
<tr>
<td>2</td>
<td>Light activity</td>
<td>Walking, light jogging, stationary cycle, light resistance training</td>
<td>&lt;80%</td>
<td>&lt;30 mins</td>
<td>Increase heart rate</td>
<td>Subjective Symptoms, resting HR, I-PRRS, RPE</td>
</tr>
<tr>
<td>3</td>
<td>Increase in frequency, duration &amp; intensity of training</td>
<td>Simple movement activities e.g. running drills</td>
<td>&lt;80%</td>
<td>&lt;60 mins</td>
<td>Increase load gradually manage any post viral fatigue symptoms</td>
<td>Subjective Symptoms, resting HR, I-PRRS, RPE</td>
</tr>
<tr>
<td>4</td>
<td>Resume normal training progressions</td>
<td>Normal training activities</td>
<td>=80%</td>
<td>&gt;60 mins</td>
<td>Restore confidence and assess functional skills</td>
<td>Subjective Symptoms, resting HR, I-PRRS, RPE</td>
</tr>
<tr>
<td>5</td>
<td>Stage 5: full Return to competition</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**RETURN TO COMPETITION IN SPORT SPECIFIC TIMELINES**

**ACRONYMS:** I-PRRS (INJURY - PSYCHOLOGICAL READINESS TO RETURN TO SPORT); RPE (RATED PERCEIVED EXERTION SCALE)

**NOTE:** THIS GUIDANCE IS SPECIFIC TO SPORTS WITH AN AEROBIC COMPONENT
EVALUATION OF EFFECTIVENESS AND LIMITATIONS

- Theoretical results would be the use of this staged diagram and its effect on:
  - Reducing the turn around time from infection to return to play for athletes.
  - Reducing the burden on the healthcare system – by decreasing unnecessary diagnostic testing and doctor’s appointments.
  - Increased ease of use compared to other algorithms and saving of time for physicians and other athletic/medical personnel.
  - Increasing young athletes understanding of their healthcare and increasing their involvement in determining return to play; improvement in shared decision making and patient satisfaction.
  - Limitations involve the specific nature of the size and demographics of Burlington compared to other locations, such as the lower prevalence and morbidity of asthma in rural areas compared to urban areas, that may play a role in Covid infections and complications.
RECOMMENDATIONS FOR FUTURE INTERVENTIONS

• Consolidation of new guidelines that emerge into preexisting models to create a universal return to play protocol.

• Incorporate data from new variants and treatments that might be influential in the return to play process, including long covid and its impact on return to play.

• Acknowledge that future different variants might require their own unique return to play guidelines depending on severity of the variant itself, and the risk factors present in the individual.

• Work on training school based medical staff on use of the protocol so that students do not need to wait to see their PCP to be cleared for return to play.
REFERENCES


