Returning to Sport after COVID-19

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Disclosures

None

Objectives

1. Describe the evaluation and management of an athlete for and with COVID-19 infection.
2. Review recent data of cardiac events in athletes after COVID-19 infection and understand their prevalence
3. Discuss the implications COVID-19 has had on sport participation.
4. Understand the risks and concerns for athletes returning to sports after COVID-19
5. Discuss the proper protocol in progressive an athlete to return to sport after COVID-19, including possible specialist involvement.

40,000,000

Youth in sports from age 6-18

Risks and Benefits

Benefits of Sport

Physical

- Cardiovascular, strength, body comp., immune system development

Mental

- Routine, problem solving, strategy

Social

- Respect, pride, ownership

General Risks from COVID-19

Transmission Risk

- Less symptomatic/severe in kids
- <10 yo versus >10 yo

Sport Risk

- Sport (players, contact, frequency)
- Setting (size, ventilation)

Post Covid Syndromes

- Post viral fatigue
- Persistent COVID
- Structural Heart and Lung Complications
  - Myocarditis

Eval and Management

Keep is Simple

Stratify level of severity

Identify “red flag” symptoms

Close monitoring for moderate and severe cases

Alarming Data: Cardiac review

COVID-19 Cardiac Risk

Early alarming data:

- JAMA Cardiology reported 28% of hospitalized pts with myocardial injury
- JAMA Cardiology: 54% of hospitalized pts with myocardial edema on cardiac MRI

- July 2020 JAMA Cards: 100 pts
- 66 classified as mild or asymptomatic
- 60% had myocardial involvement on MRI
- Lots of questions

COVID-19 Cardic Risk

Early media reports in athletes:

Case reports of myocarditis in HS, college, and prof (Red sox) baseball athletes

SCD in former Florida State basketball center

Single center studies:

- Multiple studies across US
- Varying number of participants (26-145)
- Varying prevalence of myocarditis on MRI (0 to 15%)

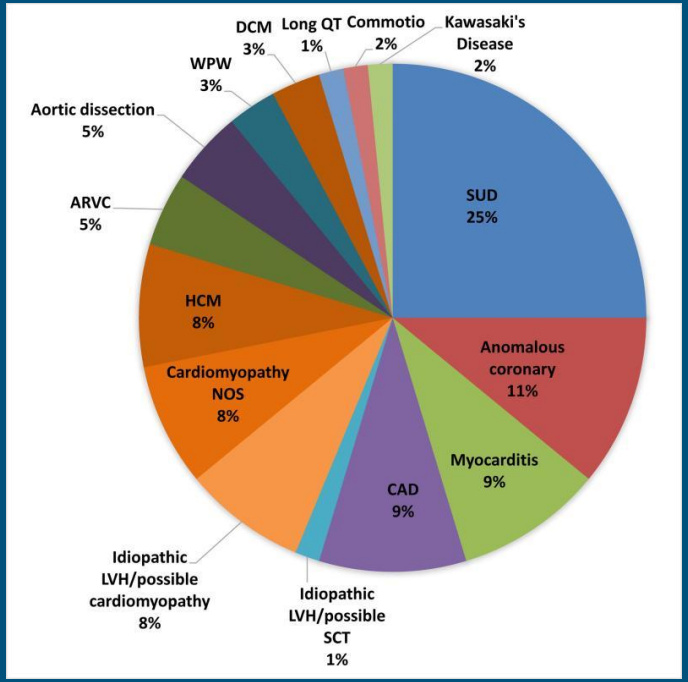
Baseline SCA/SCD

Review from 2003-2013

4.2 million athlete years surveyed

64 total SCD

6 SCD from myocarditis (9%)



Limits of MRI

What is Normal?

Biased reports (“referral for COVID r/o myocarditis”)

Sports cardiology radiologist vs. general radiologist

Overdiagnosis in screening MRI (a la Lumber MRI)

Outcomes Registry for Cardiac Conditions in Athletes (ORCCA)

- Multi-site review from September-December 2020
- 19,378 athletes tested (42 schools)
- 3018 underwent cardiac testing
- 1774 symptomatic
- Fall Sports heavy

- 2228 - cardiac triad testing
- 137 out of 3018 had abnormal cardiac testing (4.5%)

- 60/137 - No specific cardiac pathology
- 21/137 - Due to SARS-Cov2
- 56/137 - Due to underlying cardiac pathology

OVERALL: 0.7% cardiac involvement 2/2 COVID-19

National Center for Catastrophic Sport Injury Research

480,000 NCAA Athletes

~8 million HS Athletes

3 total SCA or death due to COVID from March 2020 to April 2021

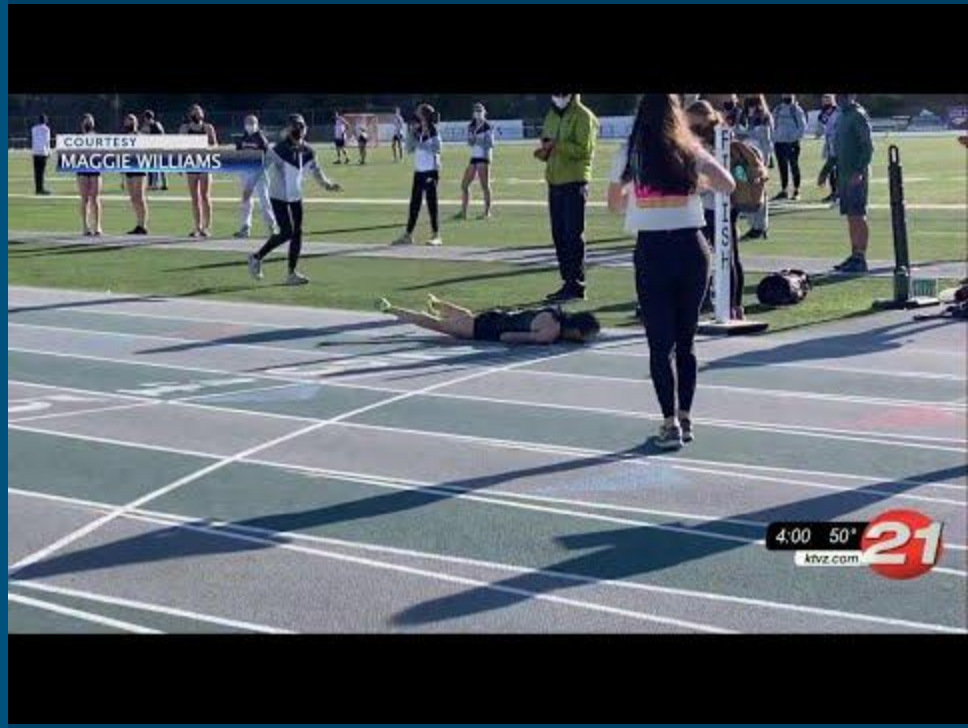
Sports with COVID-19

Testing not necessary unless symptoms or close contacts

Modifications:

- Prioritizing noncontact interactions
- Practice in “pods”
- Minimize travel
- Good ventilation
- Wear face coverings

Implications



Early MHSA Guidelines

“Any MSHA activity participant who has been diagnosed with COVID-19 cannot return to play until he/she is **evaluated by a licensed healthcare professional**, and has written clearance to return to play by both the County health Department and a licensed healthcare professional”

Consensus from MT Chapter of AAP, ACC, AMSSM, and NFSHSA

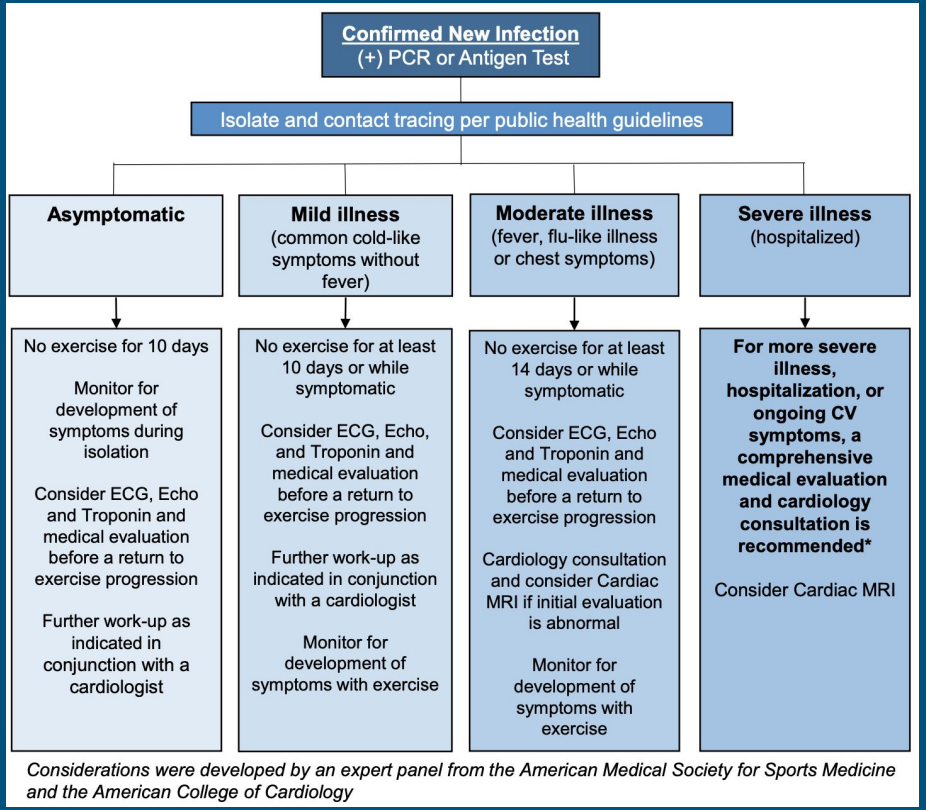
Early Return to Play Guidelines after COVID-19

Asymptomatic - sees provider, graduated return

Mild - sees provider, graduated return, f/u re: symptoms

Moderate - GRAY AREA

Severe - should already be consulted



Simplified RTP Guidelines

Asymptomatic or Mild Symptoms

No additional testing required

Return to play protocol

Moderate or Cardiopulmonary Symptoms

Cardiac Triad (ECG, Trop, ECHO)

Return to play protocol

Cardiopulmonary symptoms with exercise

Cardiac Triad (ECG, Trop, ECHO)

Cardiac MRI, Cards consult

Return to Play

COVID Return to Play Form

Athlete's Name: _____DOB: _____

Date of Positive Test: _____ Date of Symptom Onset: _____

Date of Symptom Resolution: _____ Date of Evaluation: _____

Criteria to return

❑ 14 days have passed since resolution of symptoms OR has been asymptomatic throughout 14 days of quarantine, AND;

❑ Athlete was not hospitalized and did not experience moderate/severe illness (see attached) due to COVID-19 infection, AND;

❑ EKG performed and normal (may not be necessary in asymptomatic patients) AND;

❑ Cardiac screen negative for myocarditis/myocardial ischemia (All answers below must be no)

- Chest pain/tightness with exercise YES ❑ NO ❑
- Unexplained Syncope/near syncope YES ❑ NO ❑
- Unexplained/excessive dyspnea/fatigue w/exertion YES ❑ NO ❑
- New palpitations YES ❑ NO ❑
- Heart murmur on exam YES ❑ NO ❑

***NOTE: If any of the above criteria to return are not met, pediatric cardiology consultation is recommended.**

Graduated return to Play - Children's Hospital Colorado

Phase I (2 days minimum)

- Light aerobic exercise such as a brisk walk or stationary cycling
- No resistance training
- Intensity: <70% max heart rate (HR)
- Duration: <15 minutes

Phase II (1 day minimum)

- Light sport-specific drills
- Intensity: <80% max HR
- Duration: <30 minutes

Phase III (1 day minimum)

- Moderate sport-specific drills
- Light resistance training
- Intensity: <80% max HR
- Duration: <45 minutes

Phase IV (2 days minimum)

- Normal training activities
- Intensity: <80% max HR
- Duration: <60 minutes

Phase V

- Return to full activity in training, followed by competition

Post Acute COVID syndrome (4 types)

Pt 1 month out from COVID:

1. Recovered uneventfully
2. Recovered after hospitalized
3. Case of Death: COVID

4 possible Post-COVID syndromes

1. Permanent organ damage to the lungs and heart
2. Post-intensive-care syndrome
3. Post-viral fatigue syndrome
4. Continuing Covid-19 symptoms

NIHR | National Institute for Health Research

Questions?

Sources

AAP MT Chapter Covid-19 Return to Play Guidelines

AMSSM

CDC COVID-19 guidelines

ACC

Harmon, Kimberly G., et al. "Incidence, cause, and comparative frequency of sudden cardiac death in national collegiate athletic association athletes: a decade in review." *Circulation* 132.1 (2015): 10-19.

Moulson, Nathaniel, et al. "SARS-CoV-2 Cardiac Involvement in Young Competitive Athletes." *Circulation* (2021).

https://evidence.nihr.ac.uk/themedreview/living-with-covid19/