Infographic. COVID-19 RT-PCR testing for elite athletes

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COVID-19 RT-PCR Testing for Elite Athletes
Recommendations for elite sport*

This infographic outlines evidence-based recommendations on COVID-19 reverse transcriptase PCR (RT-PCR) testing in elite sport settings, aiming to protect personal and population health, and acknowledging resources and expertise that are often available in elite sport. Public health recommendations vary by country and region, and protocol decisions should be made in consultation with relevant public health authorities.

FORM AN EXPERT GROUP
An expert, multidisciplinary group with input from clinical virology, microbiology, public health, infectious diseases and sports medicine provides optimal implementation and interpretation of testing.

PREVENTION IS BEST
Interventions to prevent COVID-19 transmission should be implemented consistently1,2 and should include
► Effective hand hygiene.
► Physical distancing: athletes should minimise discretionary social contacts and maintain a distance of at least one metre from others.
► Wearing a mask at all times when around others, especially indoors.3
► Prioritising outdoor over indoor activity where possible.

COVID-19 AND RT-PCR TESTING
The current gold standard of testing is RT-PCR testing.4–6 The test is highly sensitive and specific to SARS-CoV-2 viral RNA in laboratory conditions.2 Test results should be interpreted on the basis of the pretest probability, previous test results and clinical history. Test sensitivity and specificity will rely on the (1) quality and location of swabbing; (2) testing equipment and reagents, and (3) laboratory expertise.

Close contacts to a positive-testing athlete should be isolated and proceed with daily monitoring for symptoms and temperature, and where available testing. If the contact is asymptomatic...
and COVID-19 RT-PCR tests are negative at 7 hours of follow-up, the close contact could be considered for a return to sport, depending on discussions with local public health authorities.

**TESTING AND ELITE ATHLETE GATHERINGS**

Prior to a gathering of elite athletes, for example, at a training camp or competition, all athletes should have regular symptom checks and should undergo RT-PCR or other screening for the virus. For the first gathering, testing 6 and 3 days prior to the event is recommended, as well as testing as close to the event as logistically possible, ideally within 48 hours of the meeting. Interval (eg, weekly) PCR testing for the duration of the gathering should be considered.

**MANAGING A POSITIVE TEST**

Positive tests should be managed according to national and local public health guidance, but elite sport can often provide additional medical and testing support. The positive case, as well as all close contacts, should be isolated as soon as possible, and contact tracing should be undertaken.

If an asymptomatic athlete tests positive in screening, they should be isolated but retested to ascertain whether the result represents a true or false positive. False positives are less likely when the prevalence of COVID-19 is high. In a symptomatic individual, a positive result is considered a true positive. Careful attention should be paid to the PCR cycle threshold (Ct) and the gene expression of the result, as this correlates strongly with cultivable virus. A test with a high Ct (>30, and especially >35) may not indicate current infectivity, although the viral load may rise in subsequent days.

**INTERPRETING A NEGATIVE TEST IN AN ATHLETE**

If an athlete has symptoms indicative of coronavirus (eg, loss of taste/smell, dry cough or fever) but test results are negative, repeat testing is recommended to exclude a false negative, especially if there is a high prevalence of COVID-19 activity. An alternative diagnosis with testing for other viral aetiologies should also be considered. Unusual test results should be discussed within the expert group.

**RETESTING POST-COVID INFECTION**

Viral RNA can persist in individuals beyond infectivity for several months. For this reason, repeat PCR screening in asymptomatic athletes is not routinely recommended for 90 days postinfection. Repeat testing can stratify whether viral load is decreasing and may inform decisions to isolate a patient beyond 10 days in some cases. In the event an athlete has been retested within 90 days, consider their Ct value. When Ct is >3.3 and the patient’s symptoms have resolved, infectivity is unlikely.

**RETURN TO SPORT FOR A COVID-19 CONFIRMED CASE**

Following infection, there should be a graduated return to sport, guided by professional advice which may vary based on the severity of the illness, the demands of the sport and logistical factors. Additional cardiac testing should be considered based on the severity of illness.

**REFERENCES**

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**Infographic**


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