What You Should Know About Diving After Covid-19

UPDATE February 2022

In response to member inquiries, our evolving understanding of the impacts of Covid-19 on divers, and considering the evolution of variants on vaccinated subjects, the DAN Europe Medical Team has just issues new guidelines to determine Fitness to Dive after Covid-19.

In May 2020, DAN Europe published consensus recommendations for divers returning to diving after having been infected with the SARS-COV2 or Covid-19 virus. The recommendations were included as part of DAN Europe's Health Declaration Form for Covid-19, and were based on the medical advice compiled by the Undersea and Hyperbaric Medical Society (UHMS) in the USA, the Belgian Society for Diving and Hyperbaric Medicine (SBMHS-BVOOG), and the European Committee for Hyperbaric Medicine and Underwater and Baromedical Society (ECHM & EUBS). The University of California at San Diego (UCSD) also issued medical guidelines for recreational, scientific and commercial divers.

Now, with diving resuming in many locations, especially local diving (#DiveLocal), we have received inquiries from divers who have suffered from Covid-19 regarding when they can safely return to diving and what, if any precautions they should take. Accordingly, we thought it useful to republish these medical recommendations as shown below. In addition, we have compiled the **recent field experience of some DAN Europe physicians** who have treated and or advised divers who have had the infection.

Medical Recommendations for Returning to Diving

For the most part, the medical advisories cited above discuss the various manifestations of the virus and the risk of spreading, along with some of the known risk factors that likely determine the severity of the illness. The authors were careful to point out that at the time advisories were being prepared, scientific data was scarce, but clinical publications have shown cases with severe deterioration of the lungs, heart, central nervous system and kidneys after Covid-19 infection.

Specific concerns have been raised for divers, as persisting lung or cardiac involvement have been noted. Similar to other serious virus pneumonias, divers who have been infected with Covid-19, require a period of convalesce before returning to full activities, a process that can take weeks or months depending on symptom severity.

Here then are the consensus recommendation for returning to diving after Covid-19. Note that the guidance for divers who tested positive for COVID-19 but remained completely asymptomatic, and the guidance for those who were symptomatic but not hospitalised have been updated since the original recommendations were made in early spring 2020 and are shown below. Also be aware that guidance and recommendations may vary slightly among European countries. National recommendations were created to cope with what has been a hitherto largely unknown form of cardiopulmonary disease, and cannot be expected to be entirely uniform across counties and cultures. However, all urge divers to exercise caution.

UPDATE February 2022

In response to member inquiries, our evolving understanding of the impacts of Covid-19 on divers, and considering the evolution of variants on vaccinated subjects, the DAN Europe Medical Team has just issues new guidelines to determine Fitness to Dive after Covid-19.

Recommendations:

- Divers who have tested positive for COVID-19 but have remained completely **asymptomatic** should wait at least 30 days from the first negative test before applying for fit-to-dive clearance and eventually going back to diving.
- Divers who have had **symptomatic** COVID-19, should wait at least 30 days from the first negative test, plus an additional 30 days without symptoms (a total of two months) before applying for fit-to-dive clearance conducted by a diving medicine specialist.
- Divers who have been **hospitalised with, or because of pulmonary symptoms** in relation to COVID-19, should wait at least THREE months before applying for fit-to-dive clearance conducted or coordinated by a diving medicine specialist. The clearance should include complete pulmonary function testing (at least FVC, FEV1, PEF25-50-75, RV and FEV1/FVC), an exercise test with peripheral oxygen saturation measurement, as well as a high resolution CT scanning of the lungs to verify a return to normal.
- Divers who have been **hospitalised with, or because ofcardiac problems**in relation to COVID-19, should wait at least THREE months before applying for fit-to-dive clearance conducted or coordinated by a diving medicine specialist. The clearance should include cardiac evaluation, including echocardiography and an exercise test (exercise electrocardiography) to ascertain normal cardiac function.

It is important that these pulmonary and cardiac tests should be interpreted and validated by a medical officer with specific knowledge of diving medicine. Note that DAN Europe members are eligible to **receive a remote medical consultation with a diving medical specialist** from DAN Europe's diving support

network as part of their membership benefits.

We are including an easy to understand, **downloadable flow chart of these recommendations** developed by the Swiss Underwater and Hyperbaric Medical Society (SUHMS) that was revised 29.01.2021. Please note that the recommendations developed by SUHMS are a little more restrictive.

Other Risk Factors To be Aware of

There may be additional potential risks for divers who have had the Covid-19 infection. The best way to determine if you might be subject to a higher risk for pulmonary barotrauma, lung bubble shunting, cardiac or other problems is through a recommended diving medical exam. Divers who may be at higher risk should consider the following in resuming their diving activities in consultation with their diving doctor.

Pulmonary overpressure syndrome (lung barotrauma): Note that divers who experienced severe pulmonary symptoms may suffer from prolonged or even permanent pulmonary damage, even if the lung function seems to have returned to (near) normal. This damage may give a higher risk for lung barotrauma, even after dives without a rapid or uncontrolled ascent. (Reference: Belgian Society for Diving and Hyperbaric Medicine)

Pulmonary oxygen toxicity: At this time, there is very little known as to a possible increased sensitivity of the pulmonary tissue to the toxic effects of oxygen; therefore, a prudent attitude would be that technical diving with prolonged breathing of hyperoxic gas, with a PO2 of 1.3 ATA or higher, for example rebreather diving, should be avoided. Simple “nitrox diving,” whereby a maximum PO2 of 1.4 ATA is only breathed for short periods, at the deepest part of the dive, should not present any problem. (Reference: Belgian Society for Diving and Hyperbaric Medicine)

Decompression illness: Even less is known about the possible alteration of the “bubble filter” function of the lung after COVID-19 pulmonary infection. This may imply that the risk for decompression sickness could increase significantly. Therefore, a prudent attitude would be that divers who have suffered from pulmonary symptoms of COVID-19, limit their dives temporarily (or definitively) to well within the no decompression limits (NDL) of their computer (so that at no moment during the dive, the computer indicates mandatory decompression stops). (Reference: Belgian Society for Diving and Hyperbaric Medicine)

Prevent The Spread: Covid-19 And Diving Operations

It is expected that the Covid-19 will persist in the community, leading to a continued risk of transmission between persons if staying in direct proximity or sharing common personal equipment. Every dive center or diving team should conduct an analysis of risk prevention and mitigation using published recommendations. Divers and dive centers should observe strictly the guidelines for disinfection of diving gear as issued by the diving federations and DAN Europe and the Divers Alert Network.

Generally, it is recommended:

- **To continue the social distancing measures** as required by the local authorities also during diving operations (mostly during the surface phase of diving operations) including wearing masks and maintaining a safe social distance.
- **To disinfect private and rental equipment**, including emergency oxygen units, with appropriate disinfectants covering broad spectrum of germs, including fungi, bacteria, spores and viruses.
- **To avoid exchange of personal breathing systems** except in real emergency situations.
- To plan any “breathing systems sharing” exercises in such a way that **personal protection** is ensured.

By following the recommendations above, divers can mitigate the risks of spreading the infection, and ensure that divers who had Covid-19 resume diving activities in the safest manner possible.