

Letter to the Editor

Diving after COVID-19: an update to fitness to dive assessment and medical guidance

We write to inform the community of an update to our previously published guidelines in Diving and Hyperbaric Medicine regarding evaluation of divers who have recovered from COVID-19.¹ We originally developed these guidelines for the dive clinic at the University of California, San Diego (UCSD).

However, the current landscape of the pandemic has significantly changed since their original development in May 2020, in particular the development of vaccines protecting divers/people from infection, severe disease, and death.² We have also witnessed the evolution of a virus into various strains, including some variants that are more contagious, and some that seem to cause both more and less severe disease.³

The situation has changed significantly, with the massive surge in cases due to the Omicron variant resulting in many divers who require rapid clearance to return to work. In addition, many only report symptoms like the common cold.⁴ In light of these developments, we recognise an amendment of our guidelines is needed.

These modifications to our guidelines were developed in a response to the challenges noted above and from our clinical observations. In our experience, in addition to information gathered from very limited publications, it appears that in cases where the disease causes only upper respiratory symptoms, there are limited long term sequelae or complications.³ We have also noted the publication of multiple reports suggesting that a percentage of young and otherwise healthy patients who recover from mild or asymptomatic COVID-19 illness, may have surrogate findings of myocardial inflammation or damage on cardiac MRI. These findings are, however, of unclear clinical and prognostic significance. Our recommendations remain centered around the presence of cardiac symptoms or exercise limitations to guide further testing. Consequently, we have adjusted our treatment of such cases to a similar approach as for other uncomplicated seasonal, upper respiratory viruses.

A few things should be noted: first, recommendations for those with moderate or severe disease have not changed; second, as with our original guidelines, we strongly emphasise that these amendments are only applicable to those who have recovered from their acute illness, are completely asymptomatic, and back to their baseline exercise capacity.¹

Below is a summary of the changes made:

PREVIOUS GUIDELINES WITH REGARDS TO ASYMPTOMATIC OR MILD DISEASE:

Category 0: No history of COVID or asymptomatic positive testing.

Work up: No additional work up required

Category 1: Mild illness, defined as outpatient treatment only without hypoxia or abnormal imaging.

Work up: Spirometry and two view chest X-ray

AMENDED GUIDELINES:

Category 0: No history of COVID or asymptomatic positive testing.

Work up: No additional work up required

Category 0.5: Very mild illness. Those with isolated upper respiratory or systemic symptoms (rhinorrhea/congestion/pharyngitis/loss of taste or smell), fevers, fatigue, or myalgias but WITHOUT lower respiratory or cardiac symptoms.

Work up: No additional work up required

Category 1: Mild illness, defined as outpatient treatment only without hypoxia or abnormal imaging. Any lower respiratory or cardiac symptoms, including chest pain, palpitations, significant* cough, shortness of breath with exertion or at rest.

Work up: Spirometry and two view chest X-ray

*for example, a cough that is productive, prevents sleeping, or requires medication, ultimately defined at the discretion of the evaluating physician.

Other factors may be taken into consideration including vaccination status, as there is evidence that breakthrough infections in those vaccinated against COVID-19 results in milder disease, and regional prevalence of variants (Omicron vs. Delta, etc).^{2,5}

We must emphasise that our guidelines have been rewritten and amended out of need for urgent adaptation, from limited data, and our own clinical experience. As with all guidelines, ultimately the discretion of what work up should be obtained lies with the evaluating physician. We anticipate that we will continue to revise as the clinical picture evolves and more information is available.

References

- 1 Sadler C, Alvarez Villela M, Van Hoesen K, Grover I, Lang M, Neuman T, et al. Diving after SARS-CoV-2 (COVID-19) infection: Fitness to dive assessment and medical guidance. *Diving Hyperb Med.* 2020;50:278–87. doi: [10.28920/dhm50.3.278-287](https://doi.org/10.28920/dhm50.3.278-287). PMID: [32957131](https://pubmed.ncbi.nlm.nih.gov/32957131/). PMCID: [PMC7755459](https://pubmed.ncbi.nlm.nih.gov/PMC7755459/).
- 2 Moghadas SM, Vilches TN, Zhang K, Wells CR, Shoukat A, Singer BH, et al. The impact of vaccination on Coronavirus disease 2019 (COVID-19) outbreaks in the United States. *Clin Infect Dis.* 2021;73:2257–64. doi: [10.1093/cid/ciab079](https://doi.org/10.1093/cid/ciab079). PMID: [33515252](https://pubmed.ncbi.nlm.nih.gov/33515252/). PMCID: [PMC7929033](https://pubmed.ncbi.nlm.nih.gov/PMC7929033/).
- 3 Abdullah F, Myers J, Basu D, Tintinger G, Ueckermann V, Mathebula M, et al. Decreased severity of disease during the first global Omicron variant COVID-19 outbreak in a large hospital in Tshwane, South Africa. *Int J Infect Dis.* 2021;116:38–42. doi: [10.1016/j.ijid.2021.12.357](https://doi.org/10.1016/j.ijid.2021.12.357). PMID: [34971823](https://pubmed.ncbi.nlm.nih.gov/34971823/). PMCID: [PMC8713416](https://pubmed.ncbi.nlm.nih.gov/PMC8713416/).
- 4 Meo SA, Meo AS, Al-Jassir FF, Klonoff DC. Omicron SARS-CoV-2 new variant: global prevalence and biological and clinical characteristics. *Eur Rev Med Pharmacol Sci.* 2021;25:8012–18. doi: [10.26355/eurrev_202112_27652](https://doi.org/10.26355/eurrev_202112_27652). PMID: [34982465](https://pubmed.ncbi.nlm.nih.gov/34982465/).
- 5 Gao Y, Cai C, Grifoni A, Müller TR, Niessl J, Olofsson A, et al. Ancestral SARS-CoV-2-specific T cells cross-recognize the Omicron variant. *Nat Med.* 2022 Jan 14. Online ahead of print. doi: [10.1038/s41591-022-01700-x](https://doi.org/10.1038/s41591-022-01700-x). PMID: [35042228](https://pubmed.ncbi.nlm.nih.gov/35042228/).

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Charlotte Sadler¹, Miguel Alvarez-Villela², Karen Van Hoesen¹, Ian Grover¹, Michael Lang¹, Tom Neuman¹, Peter Lindholm¹

¹ *Department of Emergency Medicine, School of Medicine, University of California, San Diego, La Jolla (CA), USA*

² *Montefiore Medical Center/Albert Einstein College of Medicine, Department of Medicine, Division of Cardiology, Bronx, New York, USA*

Address for correspondence: *Dr Charlotte Sadler, Department of Emergency Medicine, School of Medicine, University of California, San Diego, La Jolla (CA), USA*

csadler@health.ucsd.edu

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