

IATF COVID-19 Statement #3 July 15, 2020

This statement is NOT about patients recovering from a COVID-19 infection. The statement depends on the state-of-knowledge as per date above. Knowledge and guidelines, like the WHO guidelines ¹, will change in time and will be updated when necessary.

**Patients recovering from a COVID-19 infection may show a wide array of complications requiring a rehabilitation pathway which may include aquatic therapy ². Applications of aquatic therapy will not be described in a future document. Neuromusculoskeletal symptoms like e.g. muscle weakness will be treated as usual for the moment. Until research indicates the COVID-19 recovery trajectory includes unique symptoms, IATF advocates impairment directed best practice interventions.*

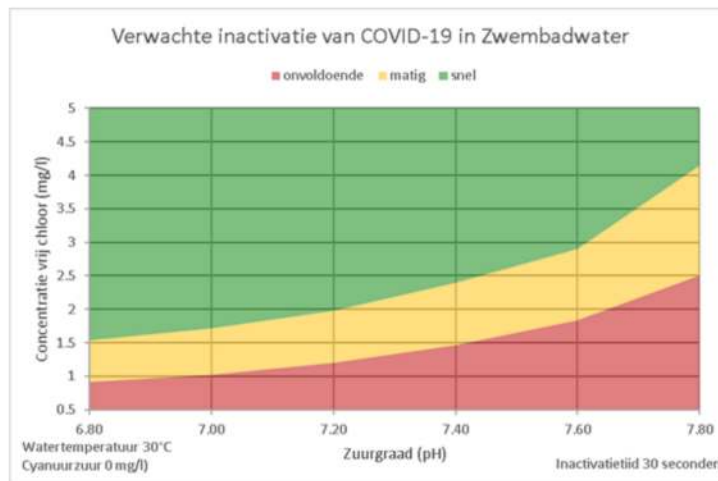
The COVID-19 pandemic is a health problem affecting almost every country in the world. Restricting the pandemic and the virus spreading from one person to another is the top priority. To this end, almost all of the countries concerned adopted rules for their territory that must be observed by their population.

Aquatic therapy as one healthcare service is impacted by COVID-19. After almost total cessation of aquatic therapy after the February lockdown, pools have started to regain service to various degrees, depending on national, regional or even local regulations. In those countries where skilled aquatic therapy (by health professionals) is not explicitly prohibited, and national rules for aquatic therapy are not clearly defined, the Association IATF recommends the following.

A COVID-19 triage should be performed according to the national regulations:

- If increased COVID-19 risk (based on symptoms ³): no face-to-face treatment
- If no increased COVID-19 risk: face-to-face treatment can be considered.
 - face-to-face treatment can be hands-off or hands-on
- The health care professional needs to decide if face-to-face aquatic therapy is necessary to prevent irreversible decline, based on normal screening procedures, the benefit-risk balance will direct practice.
- If patients do not need hands-on treatment, national rules for social distancing should be followed in the pool and all aquatic environment areas.
- National rules count for the amount of space per person in the pool, (e.g. one per 6 - 10 m²).
- If hands-on treatments are necessary, the therapist needs to consider to wear personal protective equipment (PPE) as indicated by national regulations. Experience meanwhile shows that face shields (health care approved), which also cover the sides of the face are effective while allowing communication.

- Caution with hands-on treatments in which faces of therapist and patient are close, e.g. WST exercises on therapist's lap, BRRM patterns in which the therapist holds hands or arms, Aqua-T-Relax. Even with PPE: do not stay too long and too close at the face of the patient.
- Avoid intensive aerobic training, H.I.I.T and singing, which increases respiration. This will increase ventilatory aerosol production and most probably spreading the virus. (1 minute singing equals 50 times coughing ^{3a}).
- Aerosols also develop through intensive mixing of water and air, in which exhaled viruses or virus particles can stay. There is emerging evidence that airborne transmission cannot be ruled out (WHO press-conference July 7, 2020). Blowing bubbles and splashing should be avoided. These pool aerosols consist of disinfected water, but there is no evidence that this diminishes possible risk of ventilatory aerosols
- Pool staff should be limited in order to reduce the amount of social / therapeutic contacts. If possible, specific staff should be assigned to work in the pool area.
- Patients and therapists should perform a full body and hair rinse before therapy for about 60 seconds, as recommended ^{4,5}. This helps to decrease the disinfection by-products ⁴ in the pool, which eases to maintain an adequate level of free chlorine (or bromine).
 - The American Centers for Disease Control and Prevention states "There is no evidence that COVID-19 can spread to people through the water used in pools, hot tubs, or water playgrounds. Proper operation and disinfection of pools, hot tubs, and water playgrounds should kill the virus that causes COVID-19. Limit close contact with people outside your home in public spaces, both in and out of the water" ⁶. Inactivation time of the virus that causes COVID-19 is not known yet. A panel of European, American and Australian experts met June 22nd at the conference "Pool and Spa in time of COVID-19" ^{5a} and based recommendations about disinfection on knowledge of the Adenovirus and E. Coli, as presented in the Dutch guideline ^{7,8} and the PWTAG technical note ^{8a}, in order to have a log-4 (=99.99%) reduction in 30 seconds*:
Inside pools: free chlorine should minimally be 1.5 mg/l and pH 7.0 and free bromine: minimally 3.5 mg/l and pH 7.2
*: this log-4 scale also means: 63% inactivation in 3 seconds



Expected COVID-19 inactivation in swimming pool water⁷
Inactivation: green = fast, yellow = moderate, red = insufficient

- Patients with orofacial dysfunction might swallow water and/or lose saliva, which might contain COVID-19 virus. Animal research has shown that the infection dose through the mouth is 1000 times less than through lungs^{5a,8}.
- Dilution is a key factor also of contaminated water. An advice could be not to stay too long at one place.
- Patients who belong to groups at higher risk for severe illness from COVID-19⁹ should be judiciously treated in an aquatic environment with careful scheduling to avoid other patients and staff, especially during a regional flare of COVID-19 contamination.
- Also, post-COVID-19 patients should be judiciously treated in an aquatic environment with careful scheduling to avoid other patients and staff.
- Pool/poolside/changing room equipment, door handles etc. must be cleaned and disinfected regularly according to existing regulations. WHO¹⁰ suggests a 1000 ppm bleach solution with a contact time of 1 minute after which cleaning with tap water should be done.
- Aquatic equipment should not be shared between patients during the same session and should be rinsed with pool water each time they are used, after which they should be dried thoroughly⁸.
- Air quality: CDC recommends that pool operators should monitor proper ventilation (NO recirculation when possible) in the pool basin area in order to prevent development of bio-aerosols^{11,14}. REHVA¹² states "Increase air supply and exhaust ventilation and – when possible – use more window airing, Nishiura et al.¹³ analyzed superspreading events of COVID-19 and showed that closed environments with minimal ventilation strongly contributed to a characteristically high number of secondary infections. Contamination further depends on distance, contact time, coughing, sneezing and the intensity of respiration. Relative humidity's and air temperature as common in pools do affect the

COVID-19 virus ^{12a}. Lowering the relative humidity and increasing air temperature is of advantage.

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On behalf of the Association International Aquatic Therapy Faculty

Urs Gamper

Paula Geigle

Johan Lambeck

Efthymia Vagena