

The COVID-19 pandemic

General observations regarding public swimming pools

Public swimming pools have generally been reopened late in the context of the closures necessitated by COVID-19. The authorities are concerned about the large numbers of visitors and the warm and humid climate.

The IAKS Expert Circle on Pools has put together the following information relating to the COVID-19 pandemic.

General COVID-19 rules

- According to virologists and health authorities, everyone should do two things to protect themselves:
 - (1) Practice social distancing. This is possible at swimming pools due to their spaciousness, professional supervision and control of admission.
 - (2) Hygiene rules / hand washing. Users should sanitise their hands on arrival. Once on the pool premises, the hands are constantly washed anyway due to showering and bathing.

Pool water

- The legal requirements vary significantly between countries, but ensure in most countries that all viruses and bacteria in the pool water are killed by disinfection. The water values are continuously and automatically monitored at most pools as well as being measured 2-3 times a day by hand. Infection via the water can thus be prevented. The German Federal Environment Agency has confirmed this and declares in a statement on 12.03.2020 that coronaviruses "are easier to inactivate by disinfection procedures than noroviruses and adenoviruses".

Cleaning

- In general, swimming pools have a higher standard of hygiene than other sectors and are thoroughly cleaned on an ongoing basis throughout the day and disinfected every night. In addition, it is possible to accelerate the cleaning cycles during the day and the ongoing disinfection of handled surfaces (door handles, handrails etc.).

Ventilation

- In an NDR podcast, the German virologist Prof. Dr Christian Drosten comments on coronavirus infections: "According to my estimates, half of the coronavirus transmissions are caused by droplet infection and almost the other half via aerosols. Perhaps 10 per cent are due to smear infection."
(Source: www.srf.ch/news/schweiz/corona-in-der-luft-warum-gastronomen-auf-durchzug-schalten-sollten)
Viruses only reproduce in living organisms, not on surfaces. This is in contrast to bacteria, which also reproduce on damp and warm surfaces. This means that infection with COVID-19 occurs mainly via the air.
- The physicist Prof. Dr Roland Netz, Dean of the Department of Physics at Freie Universität Berlin, has studied the lifespan of virus-containing droplets. About one percent of saliva consists of dissolved substances such as viruses, he says. When the water in the droplets evaporates, they become smaller and the remaining particles can float around in the air longer (...)
"What matters is the relative humidity." If it can be regulated, it should not be too low. The droplets then do not shrink as quickly, and heavier droplets tend to sink to the ground.
"Also, the mucous membranes will otherwise dry out and become more susceptible to viruses."
(Source: www.srf.ch/news/schweiz/corona-in-der-luft-warum-gastronomen-auf-durchzug-schalten-sollten)
- Prof. Dr Thomas Pietschmann is a molecular virologist and researches at the Centre for Experimental and Clinical Infection Research, known as Twincore, in Hannover:
"Viruses have a higher stability at low temperatures – much like food, which keeps longest in the refrigerator."
The warmer it gets, the more difficult the conditions are for many viruses. "Coronavirus is surrounded by a lipid layer, i.e. a layer of fat," says Pietschmann. This layer is not particularly heat-resistant, so the virus breaks down quickly when temperatures rise. "Other viruses, such as norovirus, are more stable because they consist mainly of proteins and genetic material."
Air humidity also has a major effect on the transmissibility of respiratory viruses. Once the pathogens have been expelled from the airways by a powerful sneeze, they are literally suspended in the air. "On cold and usually dry winter days, the small droplets together with the viruses float in the air longer than when the air humidity is high," says Pietschmann.
(Source: www.dw.com/de/hei%C3%9F-kalt-feucht-was-viren-zum-%C3%BCberleben-brauchen/a-52542124)
In Germany, there have been several outbreaks of infection in abattoirs with a cool climate and whose air conditioning systems are apparently operated with a large share of recirculated air (see difference in the Tropical Islands case study below).

- Public indoor swimming pools usually have efficient ventilation systems with long distances to and from the ventilation unit. At many pools, there are 5-6 air changes per hour in the pool hall, i.e. one change every 10-12 minutes, and the air is also set to 30-32°C and 55% relative humidity.
Pietschmann: "A high air-change rate is certainly good for eliminating or diluting any viruses that may have been released."
Ventilation systems (except for pool halls in the winter season) should therefore be operated with 100% fresh air without recirculation in order to rule out the recirculation of viruses or bacteria via the ventilation systems.

Health benefits and leisure behaviour

- A visit to a swimming pool is beneficial to health and strengthens the immune system. While the pools are / were closed, many users reliant on pool use for their health have contacted the pools about reopening. The unavailability of pool facilities has caused collateral damage to health.
- International holiday travel will not be possible in 2020, or only to a limited extent. This will result in increased domestic or local tourism (holidays at home). Swimming pools can be a sensible and safe option here.
If people do not have attractions / activities in a controlled environment, they will spend their leisure time at uncontrolled locations.

Proportionality

- A comparison must be made with other facilities that are already open. What are the concrete reasons that make a public pool worse than a shopping centre or a furniture store? A swimming pool is much better equipped for coronavirus prevention than, for example, shops or buildings generally open to the public. There is a high standard of cleaning and disinfection (nightly cleaning and disinfection of the entire premises as well as continuous daily cleaning) and frequent cycles. The ventilation systems are of superior standard. The interiors and equipment are constantly supervised by professional staff. The number of users is automatically controlled by the admission system. Infection via the pool water can be excluded given efficient water treatment.
- The aim of the lockdown has been to flatten the curve of infection and to prevent hospitals from being overloaded. In many regions this has been achieved.
It is the responsibility of the State/executive authorities to assess the proportionality of a COVID-19 measure, to review it and to adapt it regularly to the prevailing situation.
The question of proportionality must therefore be asked: is the continuing closure of swimming pools still suitable, necessary and appropriate to prevent the overloading of the health care system and an excessive risk of infection?

If the answer to this question is no, the order to close pools is a violation of the fundamental rights to freedom of trade, freedom of movement and health (e.g. of persons who enjoy health benefits from pool use or of employees who are under great mental strain as a result of the closure). Disproportionality in this area can result in liability for damages.

“Tropical Islands” case study in Germany from the beginning of March 2020

- One user was infected, and then 104 employees were tested, all of whom tested negative. According to Brandenburg’s Health Minister Ursula Nonnemacher, the authorities contacted the virologist Christian Drosten at the Berlin Charité hospital immediately after the incident became known. He explained that the pool hall was comparable to an outdoor pool in summer in terms of air volume, air circulation and outside temperature.
(Source: www.rbb24.de/panorama/thema/2020/coronavirus/beitraege/tropical-islands-corna-tests-mitarbeiter-ergebnisse.html)
- Drosten explained that due to the air volume and circulation, it was “impossible” in his eyes that “viruses capable of reproduction could still be present”.
(Source: www.welt.de/vermischtes/article206196549/Coronavirus-Patient-in-Tropical-Islands-91-Mitarbeiter-getestet.html)

Recommended restriction of operation

- No admittance for users and employees with symptoms of infection
- Limitation of number of users. The provisions vary from country to country. For instance, the maximum number of users simultaneously present can be limited to 2/3 of the available lockers.
- Limitation of the maximum number of users per pool and per sauna cabin.
- No wafting of the air with a towel after sauna infusions.
- Steam baths, brine inhalation rooms and caldariums (lukewarm rooms) should remain closed. Because the temperatures are lower than in a Finnish sauna at 80 degrees Celsius, experts are unable to agree on whether the viruses are killed off sufficiently quickly.

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