Two new reports on outbreaks of COVID-19 traced to classes at fitness facilities in Chicago and Honolulu underscore that such settings can provide the opportunity for a high attack rate of the coronavirus unless strict mitigation measures are taken.

The reports, from the Centers for Disease Control and Prevention (CDC) and published in the CDC’s Morbidity and Mortality Weekly Report, describe circumstances in which a majority of participants in high-intensity exercise classes at health facilities became infected with SARS-CoV-2. In some cases, class participants were exposed to infected instructors who were asymptomatic at the time of the classes. In other instances, participants were exposed to other infected class members who participated in classes on the day their symptoms began or even after they first experienced symptoms.

To reduce such spread at fitness facilities, the researchers said that attendees should wear masks, including during high-intensity activities even when 6 or more feet apart. In addition, they advised, “facilities should enforce physical distancing, improve ventilation, and encourage attendees to isolate after symptom onset or receiving a positive SARS-CoV-2 test result and to quarantine after a potential exposure to SARS-CoV-2 and while awaiting test results.”

Although data on transmission of SARS-CoV-2 in such settings have been limited, “outbreak reports indicate that increased respiratory exertion might aid transmission,” the researchers noted in the Chicago report. They pointed to a study documenting a high SARS-CoV-2 attack rate after a choir practice in Washington and to reports of clusters of transmission associated with fitness dance classes in South Korea, playing squash at a court in Slovenia (before mask use was widely recommended), and an indoor recreational ice hockey game at a Florida rink.

Of 81 individuals taking part in high-intensity fitness classes at the Chicago fitness facility, 55 (68%) were later identified as having confirmed or probable COVID-19, and 1 was hospitalized for 8 days. The facility required mask use, temperature checks, and symptom screening at entry and limited class size to 25% capacity (10 to 15 people). But class participants were allowed to remove their masks during exercise, and 3 out of 4 of them wore them “infrequently” (defined as no more than during 60% of class time).

At the Chicago facility, 22 of the 55 people diagnosed with COVID-19 attended a class on or after the day their symptoms began, and 3 attended the same day or even after they received a positive COVID-19 test result. Those with COVID-19 were more likely than participants without COVID-19 to report that they wore a mask no more than 60% of their time in class.

In the second report, researchers described tracing a cluster of cases linked with fitness facilities in Honolulu to a 37-year-old fitness instructor, who taught classes at 2 facilities before he began to experience any symptoms. At the time, community transmission in Honolulu County was low, with a 7-day average of 2 to 3 cases per 100,000 people per day, and masks were not required at fitness centers.

On June 29, just 4 hours before his first symptom (fatigue) appeared, this instructor taught a 1-hour stationary cycling class with 10 participants, during which neither class participants nor the instructor—who stood on a pedestal facing participants, shouting instructions and encouragement—wore a mask. Doors and windows for the 408-square-foot room were closed, and 3 large floor fans were aimed toward the participants for cooling.
All 10 cycling class members tested positive for SARS-CoV-2 in early July—including a 46-year-old man who worked as an instructor at another fitness facility, experienced onset of symptoms on the evening of July 2, and was subsequently hospitalized in an intensive care unit. But before his symptoms began, he conducted personal training sessions and small kickboxing classes (during which masks were seldom worn), and 11 of 15 people at those interactions subsequently tested positive for SARS-CoV-2.

In all, the researchers found that 21 COVID-19 cases in Honolulu were linked to the index case, the first fitness instructor, through sessions he or the second instructor led. The rate of transmission was highest on the day of symptom onset for both instructors, linked with 20 of 21 cases, resulting in an aggregated attack rate of 95%.

COVID-19 transmission was likely facilitated by low use of face masks, extended close contact, and poor room ventilation, the report said. The cycling class instructor’s shouting throughout the 1-hour session might have contributed to spread, the researchers wrote, noting evidence that aerosol emission during human speech has been correlated with loudness.

The authors of both reports said that to reduce SARS-CoV-2 transmission, both employees and patrons of fitness facilities should wear a mask, and the facilities should enforce consistent and correct mask use and physical distancing, improve ventilation, and increase opportunities for hand hygiene. In addition, “conducting exercise activities outdoors or virtually could further reduce SARS-CoV-2 transmission risk,” they wrote.