



# PAC-12 CONFERENCE

360 THIRD STREET, 3RD FLOOR, SAN FRANCISCO, CA 94107  
415.580.4200 // PAC-12.COM

## AIR QUALITY GUIDELINES

### GUIDELINE

The following serve as guidelines in assisting Pac-12 athletic department personnel, including athletic directors, team physicians, strength coaches and event management staff, in regards to training, practice and competitions when air quality is compromised.

### BACKGROUND / AQI / WILDFIRES

Increasing incidence of wildfires and other pollutants affecting air quality have led institutions to attempt to determine when and where it is safe for practice and competition in athletics. There is currently little medical or data driven guidance for participation in athletics. Furthermore, in competitions there is the added concern of safety for spectators, officials and working personnel.

The air quality index (AQI) is a nationally uniform index promulgated by the Environmental Protection Agency (EPA) for reporting and forecasting daily air quality across the country. It is used to report information about the most common ambient air pollutants, including particulate matter (PM<sub>2.5</sub> or PM<sub>10</sub>) and ozone. The AQI uses a normalized scale from 0 to 500 and provides associated health-based descriptors for each category; it is based on a full 24 hours of data.<sup>1</sup>

Air quality conditions can change rapidly, especially when air quality is affected by smoke from wildfires. In addition, air quality conditions can vary significantly from specific locale to specific locale and a general AQI for a region, metropolitan area or local area may not accurately reflect air quality at a specific athletic venue within or adjacent to those areas.

The AQI was developed for people living and working in an area with poor air quality and not specifically for those participating in athletic activity. Short-term exposure to temporarily poor air quality may primarily be of risk to those with underlying health conditions and is of unknown risk for healthy individuals. Poor air quality may be more concerning in highly-polluted areas with chronic poor air quality compared to short-term exposure associated with wildfires. As a result, duration of exposure, type of exercise, as well as anticipated air quality over a period of time should be factored into athletic participation decisions.

*AirNow.Gov* is a multi-agency web site operated by the EPA that reports air quality using the AQI and estimates the air quality for each hour within a given region. Although *AirNow.Gov* does not provide venue specific air quality readings, using *AirNow.Gov* to obtain AQI and particulate matter information can be helpful in providing estimates for a specific venue and educating the public about current conditions.

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<sup>1</sup> The standard AQI charts are based on filter based measuring equipment. More modern monitors that utilize lasers or light scattering technology will yield measurements that might require a corrective factor to be applicable to the standard AQI chart.

## NCAA

The NCAA recommends modifying or cancelling outdoor athletic events in accordance with AQI guidance. The NCAA's guidelines do not take into consideration the duration of exposure to the affected air, the varying levels of exertion in different sports, and/or that air quality may fluctuate significantly over a short period of time.

## PAC-12

Below is a general guideline for Pac-12 athletic departments and medical personnel, with the recognition that Pac-12 athletes participate in a variety of sports with different physiologic demands and minute ventilation and, as a result, ways of handling compromised air quality may differ by sport.

1. All Pac-12 institutions should use localized and venue specific data (when available) to understand venue specific air quality. Final decisions on when and where to play or practice should take into consideration a myriad of factors, including but not limited to, the sport and typical exertion levels of that sport, the local AQI in the preceding 3-24 hours, the AQI forecast, and weather forecast (including wind forecast).
2. All student-athletes, coach or athletics staff with a history of asthma, exercise-induced asthma, allergies, or other respiratory illness should take any medications prescribed for their specific condition.
3. Any student-athlete, coach or athletics staff who has experienced respiratory symptoms such as cough, chest tightness, wheezing, or shortness of breath should be excused from and refrain from physical exertion and further outside air exposure, and be seen by their team physician or personal physician.
4. If the AQI is in (or projected to be in) the range designated as unhealthy for sensitive groups (101-150 AQI) for a prolonged period of time, team physicians, athletic trainers, or strength coaches should consult with student-athletes who fall into those sensitive groups about participation in practice or competition and reduce heavy and/or prolonged exertion in athletes with a pre-existing pulmonary or cardiac condition.
5. If air quality is in (or projected to be in) the range considered "unhealthy" (AQI 151-200) for a prolonged period of time, athletics department staff should work with medical staff to consider a modification to activity by either moving indoors (to facilities with better air quality than outdoors), relocating the activity to an area with better air quality, postponing the activity to a time when air quality is expected to be better, modifying the activity to avoid activities that increase minute ventilation (e.g., intense (duration or speed) running, strenuous aerobic activity, etc.); outdoor activity and exertion levels should be minimized for athletes with a pre-existing pulmonary or cardiac condition.
6. If air quality is in (or projected to be in) the range considered "very unhealthy" (AQI >200) for a prolonged period of time, athletics department staff should work with medical staff to modify activity by either moving outdoor activity indoors (to facilities with better air quality than outdoors), relocating activity to an area with better air quality, postponing activity until a time when air quality is expected to be better, modifying activity to avoid activities that increase minute ventilation (e.g., intense (duration or speed) running, strenuous aerobic activity, etc.), and/or canceling practice. Competition should be postponed, rescheduled, relocated, or cancelled if there is substantive evidence that the AQI will remain consistently above 200 during a competition. Special consideration should be given to athletes with a

pre-existing pulmonary or cardiac condition and outdoor activities should be avoided for those individuals.

7. Some states, localities and institutions have specific rules and procedures which apply when individuals are exposed to AQI above a certain level (e.g., mandatory trainings, communication system and/or protective equipment requirements). Pac-12 institutions are expected to be familiar with and comply with any federal, state, or local laws or regulations that govern air quality for events that are taking place on their campuses. In locations in which local or state laws or regulations necessitate additional limitations, including without limitation, postponement, rescheduling, relocation, or cancellation of activity (practice or competition) at AQIs lower than those indicated in these guidelines, local and state law and regulation must be followed and implemented.

### Air Quality Index (AQI) Guidance Chart:

<b>Good</b> AQI 0-50	<ul style="list-style-type: none"> <li>• If air quality has or is forecasted to deteriorate significantly, athletics department staff and medical staff should review and familiarize themselves with this Pac-12 Guidelines and their respective institutional air quality monitoring protocol.</li> </ul>
<b>Moderate</b> AQI 51-100	<ul style="list-style-type: none"> <li>• Medical /athletic training staff and strength coaches should know which athletes have respiratory issues and check for medication compliance.</li> <li>• If air quality has or is forecasted to deteriorate significantly, a designated member of the athletic department staff should implement air quality protocol and begin work on a communications plan.</li> <li>• Athletics department staff and/or medical staff should regularly monitor air quality, with localized and/or venue specific data (when available).</li> </ul>
<b>Unhealth for Sensitive Groups</b> AQI 101-150	<ul style="list-style-type: none"> <li>• Medical/athletic training staff and strength coaches should consult with athletes who fall into the sensitive groups about participation in outdoor activity (practice or competition).</li> <li>• Limit outdoor activity for sensitive groups and have athletics medical/athletic training staff or strength coaches in attendance and monitor athletic performance for respiratory compromise.</li> <li>• Notify visiting teams of air quality conditions.</li> <li>• If air quality has or is forecasted to deteriorate significantly, athletics and medical/athletic training staff should discuss the Pac-12 Guidelines, their respective institutions air quality monitoring protocol, and the possibility of postponements and cancellations with athletic department senior leadership and representatives from the Pac-12.</li> </ul>
<b>Unhealthy</b> AQI 151-200	<ul style="list-style-type: none"> <li>• Medical/athletic training staff and strength coaches should closely monitor the health of all athletes in outdoor activity (practice or competition).</li> <li>• Athletics department staff should work with medical staff to consider a modification to practice by either moving indoors (to facilities with better air quality than outdoors), relocating practice to an area with better air quality, postponing practice to a time when air quality is expected to be better, and/or modifying practice to avoid activities that increase minute ventilation (e.g., intense (duration or speed) running, strenuous aerobic activity, etc.).</li> <li>• Implement air quality messaging and communications plan.</li> </ul>
<b>Very Unhealthy</b> AQI >200	<ul style="list-style-type: none"> <li>• Use localized and venue specific data (when available) to determine the time period when the air quality is anticipated or projected to be above AQI 200.</li> <li>• Athletics department staff should work with medical staff to modify practice by either moving indoors (to facilities with better air quality than outdoors), relocating practice to an area with better air quality, postponing practice until a time when air quality is expected to be better, modifying practice to avoid activities that increase minute ventilation (e.g., intense (duration or speed) running, strenuous aerobic activity, etc.), or cancel practice.</li> <li>• If there is substantive evidence that the AQI will remain consistently above 200 during a competition, that competition should be postponed, cancelled, rescheduled or relocated.</li> </ul>

**References and Resources:**

- Wildfire Smoke - A Guide for Public Health Officials, U.S. Environmental Protection Agency, U.S. Forest Service; U.S. Centers for Disease Control and Prevention, California Air Resources Board Wildfire revised 2016,  
[https://www3.epa.gov/airnow/wildfire\\_may2016.pdf](https://www3.epa.gov/airnow/wildfire_may2016.pdf)
- Report of NCAA Committee on Competitive Safeguards and Medical Aspects of Sports June 15-16, 2016
- U.S. Environmental Protection Agency - Air Now <https://www.airnow.gov/>