

COVID-19 in Wisconsin High School Athletics: Study Summary

BACKGROUND

COVID-19 has had an unprecedented impact on virtually every aspect of our lives. We recognize that the cancelation of school and sports has had profound negative impacts on the physical and mental health of adolescent athletes, but there is little information regarding the risk of contracting COVID-19 through sport participation. In an attempt to provide some initial information to inform ongoing discussions around youth sports, ***we collaborated with the Wisconsin Intercollegiate Athletic Association (WIAA) to collect data regarding the incidence of COVID-19 among high school athletes and the procedures being utilized by high schools to reduce the spread of COVID-19.***

In May of 2020, we conducted a nationwide survey of over 13,000 adolescent athletes regarding the impacts of school and sport cancelation due to COVID-19 on physical activity and mental health. Comparing the data from 3,200 Wisconsin athletes within this sample to data we had collected from over 5,000 Wisconsin adolescent athletes prior to COVID-19, we found that physical activity levels had dropped by 50% during the pandemic, and symptoms of depression had increased dramatically. Prior to 2020, less than 10% of Wisconsin athletes reported moderate to severe symptoms of depression. Following the widespread cancelation of school and spring sports due to COVID-19, this number had risen to 33%. In the full nationwide sample, 38% of adolescent athletes reported moderate to severe depression and 35% reported moderate to severe anxiety. (The full study results are available [here](#).)

Nonetheless, we acknowledge that COVID-19 is a dangerous disease that continues to spread throughout the country. It remains unclear, however, whether sport participation with risk mitigation procedures in place increases the risk of children contracting COVID-19 and potentially passing the virus on to other individuals. Together with the WIAA, we distributed a survey to all of the high schools in Wisconsin regarding sport reinitiation, COVID-19 cases, and risk reduction procedures being utilized during fall of 2020. ***The information presented here is intended to contribute to ongoing discussions and add to the growing body of evidence regarding the risk of COVID-19 within youth sports.***

MAJOR FINDINGS

Surveys were completed by 207 schools that had restarted sports, representing ***over 30,000 student-athletes, over 16,000 practices and over 4,000 competitive games in September 2020.***

- 271 cases of COVID-19 were reported among student-athletes. No cases resulted in hospitalization or death.
- This represents lower case and incidence rates than 14-17 year olds in Wisconsin from 9/6/2020 to 10/3/2020:

	WI High School Athletes	WI 14-17 Year Olds ^a
Total Cases	271	2318
Total Population	30074	223936
Total Person-Days ^b	846705	6270198
Case Rate (cases per 100,000 children)	901	1035
Incidence Rate (cases per person-day)^c	0.000320	0.000370

^aData accessed 10/20/20 at <https://www.dhs.wisconsin.gov/covid-19/cases.htm#youth>. ^bPerson-days represents the total number of days all individuals participated during the study period. ^cIncidence rate ratio 0.86 [95% CI: 0.58-1.3], p=0.59.

COVID-19 cases and incidence were determined for the fall sports in which 50 or more schools reported participation.

- No sports were found to have a higher incidence rate of COVID-19 than 14-17 year olds in Wisconsin from 9/6/2020 to 10/3/2020:

	Schools	Players	Cases	Person-Days	Case Rate ^a	Incidence Rate ^b	IRR [95%CI] ^c	P ^c
Cheer/Dance	73	1337	19	49520	1420	0.000384	1.05 [0.64-1.60]	0.87
Cross Country	186	4708	41	182293	871	0.000225	0.61 [0.44-0.82]	0.001
Football	162	8228	86	187881	1050	0.000458	1.24 [0.99-1.50]	0.051
Golf - Girls	68	831	7	33819	842	0.000207	0.57 [0.24-1.10]	0.12
Soccer - Boys	103	3147	27	72494	858	0.000372	1.01 [0.67-1.50]	0.97
Swimming	62	1202	15	44411	1250	0.000338	0.93[0.53-1.50]	0.73
Tennis - Girls	78	2138	13	84611	608	0.000154	0.42 [0.23-0.69]	0.001
Volleyball - Girls	179	7454	59	170211	792	0.000347	0.94 [0.72-1.20]	0.63

^aCases per 100,000 players. ^bCases per person-day, in which person-days represents the total number of days all individuals participated during the study period..

^cIncidence rate ratio [95% Confidence Interval] and significance level for comparison to COVID-19 incidence among 14-17 year olds in Wisconsin from 9/6/2020 to 10/3/2020; IRR >1 indicates increased COVID-19 incidence rate relative to WI 14-17 year olds, while IRR<1 indicates lower incidence rate. Data accessed 10/20/20 at <https://www.dhs.wisconsin.gov/covid-19/cases.htm#youth>.

Schools were asked to report the source of the transmission of any positive cases, if known.

- Of the 209 cases among players with a known source, only 1 (<0.5%) was attributed to participation in sports:

Source	Number (%)
Household Contact	115 (55.0%)
School Contact (not sport)	5 (2.4%)
Community Contact (not sport or school)	85 (40.7%)
Sport Contact	1 (0.5%)
Other Contact	3 (1.4%)
Unknown	62 (29.7%)

Schools were asked if classes were being conducted in-person or virtually during the study period.

- The incidence of COVID-19 among athletes did not differ between schools with virtual versus in-person instruction:

	In-Person	Virtual
Number of Schools ^a	182	16
Total Cases	243	25
Total Population	26342	2523
Total Person-Days ^b	774726	71979
Cases Rate (cases per 100,000 Student-Athletes)	922	991
Incidence Rate (cases per player-day)^c	0.000314	0.000347

^aNine schools did not respond regarding in-person versus virtual school instruction. ^bPerson-days represents the total number of days all individuals participated during the study period. ^cIncidence rate ratio 0.86 [95% CI: 0.58-1.3], p=0.59.

Schools were asked about the presence of a formal plan regarding COVID-19 and risk mitigation procedures.

- 100% of the schools reported that they had a formal plan in place regarding COVID-19 risk reduction. The median number of procedures utilized was 8 per school. The number and proportion of schools reporting the use of specific procedures:

Risk mitigation procedure	Number of Schools (%)
Player/staff symptom monitoring	186 (89.9%)
Player/staff temperature checks at home	137 (66.2%)
Player/staff temperature checks on site	86 (41.5%)
Face mask use for players off the field	176 (85.0%)
Face mask use for staff	203 (98.1%)
Social distancing for players off the field	171 (82.6%)
Social distancing for staff	176 (85.0%)
Increased facility disinfection	195 (94.2%)
Staggered arrival and departure times for events	91 (44.0%)
Face mask use for players while playing	173 (83.6%)
Social distancing for players while playing	89 (43.0%)

CONCLUSIONS

These findings suggest that participation in sports is not associated with an increased risk of COVID-19 among Wisconsin high school student-athletes. The total case rate and incidence rate reported by this statewide sample representing over 30,000 student-athletes are lower than those reported by the Wisconsin Department of Health Services for 14-17 year olds during the same time period. In fact, no specific sport had a statistically higher incidence rate than the background incidence among adolescents across the state during the same time period. Furthermore, while the number of schools utilizing virtual instruction was small, we identified no difference in COVID-19 incidence between student-athletes from schools with in-person versus virtual instruction.

In addition, these findings agree with the existing literature regarding COVID-19 severity in children, as none of the cases were reported to result in hospitalization or death. Although 30% of the reported cases did not have an identified source, only 1 (<0.5%) of the cases with a reported source was attributed to transmission during sports activities. Finally, all of the respondent high schools reported having a formal COVID-19 plan in place, and the majority reported utilizing a broad range of risk mitigation procedures.

While we hope that this information will help contribute to the ongoing discussions about the relative risks and benefits of youth sport participation, we should recognize that COVID-19 risk will vary in different areas of the country and across age groups. Therefore, efforts to assess COVID-19 risk among youth athletes should be expanded and replicated in other populations in order to provide a more complete picture of the risk of COVID-19 transmission during sport participation.