



## **KSHSAA Concussion Reporting Summary 2020-2021 School Year**

Sport related concussions are a traumatic brain injury caused by biomechanical forces. The force can be a direct blow to the head or an indirect blow leading to a sudden acceleration/deceleration of the skull. Concussions are a functional injury to the brain, meaning structural injuries will typically not be present or appear with standard neuroimaging studies (MRI, CT scan). A concussion diagnosis by a physician is based on observed signs and reported symptoms by the student-athlete, and a series of neuro-cognitive tests administered by a healthcare professional. An athlete does not have to lose consciousness to sustain a concussion. Continuing athletic participation after sustaining a concussion or while a concussion is still resolving can have very serious consequences, including death. Therefore, over the past several years a greater emphasis has been placed on concussion recognition and proper management at all levels of athletics, including the high school/middle school level.

In 2011 the Kansas Legislature enacted the School Sports Head Injury Prevention Act requiring any student-athlete who is suspected of sustaining a concussion be immediately removed from the activity and not permitted to return until they receive written clearance from a physician (MD or DO). For the past several years Kansas coaches and student-athletes have been required to go through annual concussion prevention, recognition and management training. By recommendation of the KSHSAA Sports Medicine Advisory Committee and approval of the KSHSAA Executive Board, the 2018-2019 school year marked the first year KSHSAA member schools (grades 7-12) were required to report concussions to the KSHSAA. Only concussions sustained while participating in a KSHSAA sponsored activity (practice or competition) are to be reported to the Association. School personnel report concussions through a secure online portal, using a two-step process. The first step is to report the concussion injury and answer several questions about the injury as soon as possible after the injury occurs. The second step is to provide the date the student was cleared to resume participation. With this information the KSHSAA can determine concussion incidence by activity (and other criteria) as well as calculate the average number of days student-athletes miss due to concussions in each sport.

$$\text{Concussion incidence} = \# \text{ Concussions reported} / \text{Total participants in the activity}$$

The following tables summarize the 2020-21 concussion reporting data submitted by member schools. The KSHSAA and the KSHSAA Sports Medicine Advisory Committee are extremely grateful for the efforts of all member schools in reporting concussion data. Having quality Kansas data to evaluate is invaluable in helping make well informed policy decisions and maintain the healthiest possible participation environment for Kansas students.



**Table 1 – General reporting statistics**

	<b>Reported Concussions</b>	<b>Total Participants*</b>	<b>Incidence</b>
<b>2018-19</b>	2127	112,116	1.90%
<b>2019-20</b>	1769	108,490	1.63%
<b>2020-21</b>	857	94,760	0.90%

	<b># Schools Reporting at least 1 case</b>	<b>Total member schools</b>	
<b>2019-20</b>	413	760	54.34%
<b>2020-21</b>	262	760	34.47%

\* Total participants = total number of students submitted through the KSHSAA online eligibility portal. All athletes and spirit participants are to be reported. Students are reported one time, no matter how many sports they participate in.



**Table 2 – Breakdown by activity**

<b>HIGH SCHOOLS</b>									
<b>ACTIVITY</b>	<b>2020-21</b>			<b>2019-20 (fall &amp; winter only)</b>			<b>2018-19</b>		
	<b># CONC</b>	<b>TOTAL PART.</b>	<b>INCIDENCE</b>	<b># CONC</b>	<b>TOTAL PART.</b>	<b>INCIDENCE</b>	<b># CONC.</b>	<b>TOTAL PART.</b>	<b>INCIDENCE</b>
Cross Country (G)	1	2,390	0.04%	4	2,787	0.14%	0	2,816	0.00%
Cross Country (B)	0	3,229	0.00%	0	3,820	0.00%	1	3,857	0.03%
Football (Overall)	339	14,146	2.40%	797	14,754	5.40%	903	14,661	6.16%
Football (11-Player)	286	12,085	2.37%	711	12,663	5.61%	806	12,605	6.39%
Football (8-Player)	47	1,886	2.49%	73	1,913	3.82%	93	1,921	4.84%
Football (6-Player)	6	175	3.43%	13	178	7.30%	4	135	2.96%
Golf (G)	0	1,168	0.00%	1	1,251	0.08%	4	1,171	0.34%
Gymnastics	1	100	1.00%	0	124	0.00%	3	153	1.96%
Soccer (B)	40	3,825	1.05%	87	4,253	2.05%	89	4,342	2.05%
Tennis (G)	3	2,591	0.12%	1	3,030	0.03%	0	2,795	0.00%
Volleyball	33	8,022	0.41%	97	8,520	1.14%	115	8,278	1.39%
Band	0	14,664	0.00%	3	16,550	0.02%	4	17,417	0.02%
Basketball (G)	72	6,055	1.19%	145	6,449	2.25%	137	6,530	2.10%
Basketball (B)	48	8,056	0.60%	64	8,625	0.74%	66	8,788	0.75%
Bowling (G)	0	730	0.00%	0			0		
Bowling (B)	0	880	0.00%	0			0		
Cheer	22	4,652	0.47%	88	4,910	1.79%	105	4,807	2.18%
Dance	1	2,172	0.05%	9	2,289	0.39%	12	2,192	0.55%
Swim/Dive (Boys)	3	1,301	0.23%	3	1,714	0.18%	3	1,695	0.18%
Wrestling	58	4,902	1.18%	131	5,847	2.24%	149	5,000	2.98%
Wrestling (B)	44	3,989	1.10%	96	4,921	1.95%	139	4,724	2.94%
Wrestling (G)	14	913	1.53%	35	926	3.78%	10	276	3.62%
Baseball	10	6268	0.16%	0			27	6,502	0.42%
Golf (B)	0	2458	0.00%	0			2	2,633	0.08%
Soccer (G)	69	3118	2.21%	3			128	3,524	3.63%
Softball	30	4975	0.60%	2			49	5,160	0.95%
Swimming & Diving (G)	2	1615	0.12%	1			10	2,178	0.46%
Tennis (B)	0	1993	0.00%	0			0		
Track & Field (B)	2	8916	0.02%	0			5	10,048	0.05%
Track & Field (G)	1	6366	0.02%	0			6	7,304	0.08%
	<b>735</b>			<b>1436</b>			<b>1818</b>		



**Table 3 – Breakdown by activity**

<b>MIDDLE SCHOOLS</b>									
	<b>2020-21</b>			<b>2019-20</b>			<b>2018-19</b>		
<b>ACTIVITY</b>	<b># CONC</b>	<b>TOTAL PART.</b>	<b>INCIDENCE</b>	<b># CONC</b>	<b>TOTAL PART.</b>	<b>INCIDENCE</b>	<b># CONC.</b>	<b>TOTAL PART.</b>	<b>INCIDENCE</b>
Cross Country (B)	0	1,856	0.00%	1	2,922	0.03%	1	2,832	0.04%
Cross Country (G)	0	1,538	0.00%	0	2,134	0.00%	0	2,048	0.00%
Football	77	7,781	0.99%	191	9,712	1.97%	155	9,508	1.63%
Soccer (B)	0	472	0.00%	1	693	0.14%	2	559	0.36%
Volleyball	4	7,093	0.06%	33	8,972	0.37%	27	8,726	0.31%
Basketball (B)	11	7,373	0.15%	27	8,992	0.30%	21	8,681	0.24%
Basketball (G)	18	6,419	0.28%	44	7,814	0.56%	52	7,532	0.69%
Cheer	0	2,599	0.00%	14	3,332	0.42%	12	3,269	0.37%
Wrestling	5	3,345	0.15%	22	3,765	0.58%	22	3,668	0.60%
Soccer (G)	4	468	0.85%		574	0.00%	5	448	1.12%
Track & Field (B)	2	8,441	0.02%			#DIV/0!	7	10,232	0.07%
Track & Field (G)	1	8,249	0.01%			#DIV/0!	5	10,208	0.05%
	<b>122</b>			<b>333</b>			<b>309</b>		

Participation data in tables 4-6 reflect activity specific participation, meaning students are counted multiple times if they participate in multiple activities.

**Table 4 – Gender comparison**

	<b>2020-2021</b>			<b>2019-2020 (fall &amp; winter only)</b>			<b>2018-2019</b>		
	<b>Reported Concussions</b>	<b>Total Participants</b>	<b>Incidence</b>	<b>Reported Concussions</b>	<b>Total Participants</b>	<b>Incidence</b>	<b>Reported Concussions</b>	<b>Total Participants</b>	<b>Incidence</b>
<b>Boys</b>	485	55,815	<b>0.87%</b>	1,048	39,241	<b>2.67%</b>	1,235	60,775	<b>2.03%</b>
<b>Girls</b>	250	45,422	<b>0.55%</b>	385	31,053	<b>1.24%</b>	579	48,092	<b>1.20%</b>
<b>All sports/spirit</b>									
	<b>Reported Concussions</b>	<b>Total Participants</b>	<b>Incidence</b>	<b>Reported Concussions</b>	<b>Total Participants</b>	<b>Incidence</b>	<b>Reported Concussions</b>	<b>Total Participants</b>	<b>Incidence</b>
<b>Boys</b>	146	41,595	<b>0.35%</b>	253	24,523	<b>1.03%</b>	332	46,114	<b>0.72%</b>
<b>Girls</b>	250	44,885	<b>0.56%</b>	383	31,017	<b>1.23%</b>	579	48,092	<b>1.20%</b>
<b>All sports except football</b>									



**Table 5 – Classification comparison**

Class	2020-21			2019-20 (fall & winter only)		
	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence
1A	73	11,796	0.62%	126	8,676	1.45%
2A	56	11,315	0.49%	127	7,784	1.63%
3A	100	17,132	0.58%	174	11,385	1.53%
4A	105	14,992	0.70%	215	9,717	2.21%
5A	183	20,187	0.91%	359	13,986	2.57%
6A	218	25,815	0.84%	432	18,724	2.31%

**Table 6 – Grade comparison**

Grade	2020-21			2019-20 (fall & winter only)		
	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence
Freshman	212	30,049	0.71%	434	21,350	2.03%
Sophomore	197	26,813	0.73%	425	18,586	2.29%
Junior	185	23,692	0.78%	313	16,341	1.92%
Senior	141	20,683	0.68%	250	14,046	1.78%



**Table 7 – Comparison by setting**

	2020-21				2019-20 (fall & winter only)			
	HIGH SCHOOLS				HIGH SCHOOLS			
	Competition		Practice		Competition		Practice	
Baseball	5	50.00%	5	50.00%	0	0.00%	0	0.00%
Basketball	80	66.67%	40	33.33%	156	74.64%	53	25.36%
Cheer	6	27.27%	16	72.73%	19	21.59%	69	78.41%
Cross Country	0	0.00%	1	100.00%	1	25.00%	3	75.00%
Dance/Drill Team	0	0.00%	1	100.00%	2	22.22%	7	77.78%
Football	233	68.73%	106	31.27%	587	73.65%	210	26.35%
Golf	0	0.00%	0	0.00%	0	0.00%	1	100.00%
Gymnastics	0	0.00%	1	100.00%	0	0.00%	0	0.00%
Soccer	85	77.98%	24	22.02%	78	86.67%	12	13.33%
Softball	15	50.00%	15	50.00%	0	0.00%	2	100.00%
Swimming	1	20.00%	4	80.00%	0	0.00%	4	100.00%
Tennis	3	100.00%	0	0.00%	0	0.00%	1	100.00%
Track & Field	0	0.00%	3	100.00%	0	0.00%	0	0.00%
Volleyball	18	54.55%	15	45.45%	62	63.92%	35	36.08%
Wrestling	25	43.10%	33	56.90%	67	51.15%	64	48.85%

	MIDDLE SCHOOLS				MIDDLE SCHOOLS			
	Competition		Practice		Competition		Practice	
Basketball	22	75.86%	7	24.14%	56	78.87%	15	21.13%
Cheer	0	0.00%	0	0.00%	0	0.00%	14	100.00%
Cross Country	0	0.00%	0	0.00%	0	0.00%	1	100.00%
Football	59	76.62%	18	23.38%	138	72.25%	53	27.75%
Soccer	4	100.00%	0	0.00%	0	0.00%	1	100.00%
Track & Field	2	66.67%	1	33.33%	0	0.00%	0	0.00%
Volleyball	1	25.00%	3	75.00%	18	52.94%	16	47.06%
Wrestling	2	40.00%	3	60.00%	11	50.00%	11	50.00%



**Table 8**

**Was the student immediately removed from participation at the time of injury?**

	2020-21		2019-20	
Yes	566	66.04%	1095	61.86%
No	291	33.96%	675	38.14%

**Was an athletic trainer onsite at the time of injury?**

	2020-21		2019-20	
Yes	507	59.16%	1012	57.18%
No	292	34.07%	639	36.10%
Don't know	58	6.77%	119	6.72%

**Who made the decision to remove the student from participation?**

	2020-21		2019-20	
Athletic Trainer	397	46.32%	796	44.97%
Coach	308	35.94%	597	33.73%
Physician	46	5.37%	129	7.29%
Other/No answer	40	4.67%	100	5.65%
Student Participant	32	3.73%	84	4.75%
Parent	20	2.33%	34	1.92%
Other Healthcare Provider	14	1.63%	30	1.69%

**Were academic modifications necessary for this student due to the concussion?**

	2020-21		2019-20	
Yes	288	33.61%	685	38.70%
No	544	63.48%	1040	58.76%
No answer	25	2.92%	45	2.54%

**Has this student sustained any other concussions that you are aware of?**

	2020-21		2019-20	
Yes	195	22.75%	312	17.63%
No	501	58.46%	1031	58.25%
Don't know	161	18.79%	427	24.12%