



## **KSHSAA Concussion Reporting Summary 2021-2022 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. No personally identifiable information is collected.

Concussion incidence = # Concussions reported / Total participants in the activity

The following tables summarize the 2021-22 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 to minimize the risk of activity participation for Kansas students.



**Table 1 – General reporting statistics**

	<b>Reported Concussions</b>	<b>Total Participants*</b>	<b>Incidence</b>
<b>2021-22</b>	1082	107,692	1.00%
<b>2020-21</b>	857	94,760	0.90%
<b>2019-20</b>	1769	108,490	1.63%
<b>2018-19</b>	2127	112,116	1.90%

	<b># Schools Reporting at least 1 case</b>	<b>Total member schools</b>	
<b>2021-22</b>	241	758	31.79%
<b>2020-21</b>	262	760	34.47%
<b>2019-20</b>	413	760	54.34%

\* 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

HIGH SCHOOLS												
ACTIVITY	2021-22			2020-21			2019-20 (fall & winter only)			2018-19		
	# CONC	TOTAL PART.	INCIDENCE	# CONC	TOTAL PART.	INCIDENCE	# CONC	TOTAL PART.	INCIDENCE	# CONC.	TOTAL PART.	INCIDENCE
Band	2	12,581	0.02%	0	14,664	0.00%	3	16,550	0.02%	4	17,417	0.02%
Cross Country (G)	1	2,435	0.04%	1	2,390	0.04%	4	2,787	0.14%	0	2,816	0.00%
Cross Country (B)	1	3,321	0.03%	0	3,229	0.00%	0	3,820	0.00%	1	3,857	0.03%
Football (Overall)	436	15,113	2.88%	339	14,146	2.40%	797	14,754	5.40%	903	14,661	6.16%
Football (11-Player)	392	12,926	3.03%	286	12,085	2.37%	711	12,663	5.61%	806	12,605	6.39%
Football (8-Player)	39	2,007	1.94%	47	1,886	2.49%	73	1,913	3.82%	93	1,921	4.84%
Football (6-Player)	5	180	2.78%	6	175	3.43%	13	178	7.30%	4	135	2.96%
Golf (G)	1	1,208	0.08%	0	1,168	0.00%	1	1,251	0.08%	4	1,171	0.34%
Gymnastics	0	95	0.00%	1	100	1.00%	0	124	0.00%	3	153	1.96%
Soccer (B)	42	4,163	1.01%	40	3,825	1.05%	87	4,253	2.05%	89	4,342	2.05%
Tennis (G)	1	2,852	0.04%	3	2,591	0.12%	1	3,030	0.03%	0	2,795	0.00%
Unified Bowling	0	422	0.00%									
Volleyball	57	8,630	0.66%	33	8,022	0.41%	97	8,520	1.14%	115	8,278	1.39%
Basketball (G)	67	6,261	1.07%	72	6,055	1.19%	145	6,449	2.25%	137	6,530	2.10%
Basketball (B)	40	8,028	0.50%	48	8,056	0.60%	64	8,625	0.74%	66	8,788	0.75%
Bowling (G)	0	808	0.00%	0	730	0.00%	0	899	0.00%	0	908	0.00%
Bowling (B)	0	1,074	0.00%	0	880	0.00%	0	1,009	0.00%	0	985	0.00%
Cheer	68	4,589	1.48%	22	4,652	0.47%	88	4,910	1.79%	105	4,807	2.18%
Dance	3	2,122	0.14%	1	2,172	0.05%	9	2,289	0.39%	12	2,192	0.55%
Swim/Dive (Boys)	5	1,470	0.34%	3	1,301	0.23%	3	1,714	0.18%	3	1,695	0.18%
Wrestling	109	6,081	1.79%	58	4,902	1.18%	131	5,847	2.24%	149	5,000	2.98%
Wrestling (B)	68	4,638	1.47%	44	3,989	1.10%	96	4,921	1.95%	139	4,724	2.94%
Wrestling (G)	41	1,443	2.84%	14	913	1.53%	35	926	3.78%	10	276	3.62%
Baseball	18	6,596	0.27%	10	6,268	0.16%	0			27	6,502	0.42%
Golf (B)	0	2,567	0.00%	0	2,458	0.00%	0			2	2,633	0.08%
Soccer (G)	51	3,468	1.47%	69	3,118	2.21%	3			128	3,524	3.63%
Softball	27	4,927	0.55%	30	4,975	0.60%	2			49	5,160	0.95%
Swimming & Diving (G)	6	1,711	0.35%	2	1,615	0.12%	1			10	2,178	0.46%
Tennis (B)	0	2,215	0.00%	0	1,993	0.00%	0			0	2,540	0.00%
Track & Field (B)	1	9,588	0.01%	2	8,916	0.02%	0			5	10,048	0.05%
Track & Field (G)	4	7,209	0.06%	1	6,366	0.02%	0			6	7,304	0.08%
	<b>940</b>	<b>119,534</b>		<b>735</b>	<b>112,251</b>		<b>1433</b>			<b>1814</b>		



**Table 3 – Breakdown by activity**

MIDDLE SCHOOLS												
	2021-22			2020-21			2019-20			2018-19		
ACTIVITY	# CONC	TOTAL PART.	INCIDENCE	# CONC	TOTAL PART.	INCIDENCE	# CONC	TOTAL PART.	INCIDENCE	# CONC.	TOTAL PART.	INCIDENCE
Cross Country (B)	0	2,466	0.00%	0	1,856	0.00%	1	2,922	0.03%	1	2,832	0.04%
Cross Country (G)	0	1,834	0.00%	0	1,538	0.00%	0	2,134	0.00%	0	2,048	0.00%
Football	79	10,194	0.77%	77	7,781	0.99%	191	9,712	1.97%	155	9,508	1.63%
Soccer (B)	0	957	0.00%	0	472	0.00%	1	693	0.14%	2	559	0.36%
Volleyball	18	8,427	0.21%	4	7,093	0.06%	33	8,972	0.37%	27	8,726	0.31%
Basketball (B)	11	8,647	0.13%	11	7,373	0.15%	27	8,992	0.30%	21	8,681	0.24%
Basketball (G)	16	6,869	0.23%	18	6,419	0.28%	44	7,814	0.56%	52	7,532	0.69%
Cheer	5	3,065	0.16%	0	2,599	0.00%	14	3,332	0.42%	12	3,269	0.37%
Wrestling	10	4,345	0.23%	5	3,345	0.15%	22	3,765	0.58%	22	3,668	0.60%
Soccer (G)	0	695	0.00%	4	468	0.85%		574	0.00%	5	448	1.12%
Track & Field (B)	3	10,111	0.03%	2	8,441	0.02%			#DIV/0!	7	10,232	0.07%
Track & Field (G)	0	9,420	0.00%	1	8,249	0.01%			#DIV/0!	5	10,208	0.05%
	<b>142</b>	<b>67,030</b>		<b>122</b>	<b>55,634</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**

	2021-2022			2020-2021			2019-2020 (fall & winter only)			2018-2019		
	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence
<b>Boys</b>	612	59,128	<b>1.04%</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>	328	45,891	<b>0.71%</b>	250	45,422	<b>0.55%</b>	385	31,053	<b>1.24%</b>	579	48,092	<b>1.20%</b>
All sports/spirit												
	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence
<b>Boys</b>	176	44,049	<b>0.40%</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>	328	45,857	<b>0.72%</b>	250	44,885	<b>0.56%</b>	383	31,017	<b>1.23%</b>	579	48,092	<b>1.20%</b>
All sports except football												



**Table 5 – Classification comparison**

Class	2021-22			2020-21			2019-20 (fall & winter only)		
	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence
1A	70	13,123	0.53%	73	11,796	0.62%	126	8,676	1.45%
2A	64	12,442	0.51%	56	11,315	0.49%	127	7,784	1.63%
3A	106	19,137	0.55%	100	17,132	0.58%	174	11,385	1.53%
4A	185	17,495	1.06%	105	14,992	0.70%	215	9,717	2.21%
5A	207	25,819	0.80%	183	20,187	0.91%	359	13,986	2.57%
6A	308	31,464	0.98%	218	25,815	0.84%	432	18,724	2.31%

**Table 6 – Grade comparison**

Grade	2021-22			2020-21			2019-20 (fall & winter only)		
	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence	Reported Concussions	Total Participants	Incidence
Freshman	309	36,921	0.84%	212	30,049	0.71%	434	21,350	2.03%
Sophomore	267	30,968	0.86%	197	26,813	0.73%	425	18,586	2.29%
Junior	220	27,349	0.80%	185	23,692	0.78%	313	16,341	1.92%
Senior	144	24,277	0.59%	141	20,683	0.68%	250	14,046	1.78%



**Table 7 – Comparison by setting**

	2021-22				2020-21				2019-20			
	HIGH SCHOOLS				HIGH SCHOOLS				HIGH SCHOOLS			
	Competition		Practice		Competition		Practice		Competition		Practice	
Baseball	8	44.44%	10	55.56%	5	50.00%	5	50.00%	0	0.00%	0	0.00%
Basketball	72	67.29%	35	32.71%	80	66.67%	40	33.33%	156	74.64%	53	25.36%
Cheer	10	14.71%	58	85.29%	6	27.27%	16	72.73%	19	21.59%	69	78.41%
Cross Country	0	0.00%	2	100.00%	0	0.00%	1	100.00%	1	25.00%	3	75.00%
Dance/Drill Team	1	33.33%	2	66.67%	0	0.00%	1	100.00%	2	22.22%	7	77.78%
Football	313	71.79%	123	28.21%	233	68.73%	106	31.27%	587	73.65%	210	26.35%
Golf	0	0.00%	1	100.00%	0	-	0	-	0	0.00%	1	100.00%
Gymnastics	0	-	0	-	0	0.00%	1	100.00%	0	-	0	-
Soccer	80	86.02%	13	13.98%	85	77.98%	24	22.02%	78	86.67%	12	13.33%
Softball	12	44.44%	15	55.56%	15	50.00%	15	50.00%	0	0.00%	2	100.00%
Swimming	1	9.09%	10	90.91%	1	20.00%	4	80.00%	0	0.00%	4	100.00%
Tennis	0	0.00%	1	100.00%	3	100.00%	0	0.00%	0	0.00%	1	100.00%
Track & Field	3	60.00%	2	40.00%	0	0.00%	3	100.00%	0	-	0	-
Volleyball	26	45.61%	31	54.39%	18	54.55%	15	45.45%	62	63.92%	35	36.08%
Wrestling	38	34.86%	71	65.14%	25	43.10%	33	56.90%	67	51.15%	64	48.85%
	MIDDLE SCHOOLS				MIDDLE SCHOOLS				MIDDLE SCHOOLS			
	Competition		Practice		Competition		Practice		Competition		Practice	
Basketball	21	77.78%	6	22.22%	22	75.86%	7	24.14%	56	78.87%	15	21.13%
Cheer	1	20.00%	4	80.00%	0	-	0	-	0	0.00%	14	100.00%
Cross Country	0	-	0	-	0	-	0	-	0	0.00%	1	100.00%
Football	57	72.15%	22	27.85%	59	76.62%	18	23.38%	138	72.25%	53	27.75%
Soccer	0	-	0	-	4	100.00%	0	0.00%	0	0.00%	1	100.00%
Track & Field	0	0.00%	3	100.00%	2	66.67%	1	33.33%	0	-	0	-
Volleyball	6	33.33%	12	66.67%	1	25.00%	3	75.00%	18	52.94%	16	47.06%
Wrestling	7	70.00%	3	30.00%	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?**

	2021-22		2020-21		2019-20	
Yes	717	66.27%	566	66.04%	1095	61.86%
No	365	33.73%	291	33.96%	675	38.14%

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

	2021-22		2020-21		2019-20	
Yes	647	59.80%	507	59.16%	1012	57.18%
No	365	33.73%	292	34.07%	639	36.10%
Don't know	70	6.47%	58	6.77%	119	6.72%

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

	2021-22		2020-21		2019-20	
Athletic Trainer	517	47.78%	397	46.32%	796	44.97%
Coach	374	34.57%	308	35.94%	597	33.73%
Physician	58	5.36%	46	5.37%	129	7.29%
Student Participant	58	5.36%	32	3.73%	84	4.75%
Other/No answer	46	4.25%	40	4.67%	100	5.65%
Parent	17	1.57%	20	2.33%	34	1.92%
Other Healthcare Provider	12	1.11%	14	1.63%	30	1.69%

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

	2021-22		2020-21		2019-20	
Yes	374	34.57%	288	33.61%	685	38.70%
No	603	55.73%	544	63.48%	1040	58.76%
No answer	105	9.70%	25	2.92%	45	2.54%

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

	2021-22		2020-21		2019-20	
Yes	183	16.91%	195	22.75%	312	17.63%
No	672	62.11%	501	58.46%	1031	58.25%
Don't know	227	20.98%	161	18.79%	427	24.12%