



2023-2024 Interscholastic Youth Sports Acute Brain Injury Report

2023-2024

Interscholastic Youth Sports Acute Brain Injury Prevention Report

SCS HCS HB 300, 334, and 387 became law in August 2011, and it mandates that an organization with public schools as members must publish and distribute an annual report regarding the impact of student athlete concussions and head injuries which should include efforts that may be made to minimize damages from school sports injuries. The Department of Health and Senior Services, along with a statewide association of school boards [Missouri School Board Association (MSBA)], a statewide activities association that provides oversight for athletic or activity eligibility for students and school districts, [Missouri State High School Activities Association (MSHSAA)], and an organization named by the Department of Health and Senior Services that specializes in support services, education and advocacy of those with brain injuries [Brain Injury Association of Missouri (BIA-MO)] developed guidelines, pertinent information and forms to educate coaches, staff members, athletes and parents or guardians of youth athletes of the nature and risk of concussion and brain injury including continuing to play after a concussion or a brain injury (1).

MSHSAA has distributed and updated head injury materials annually since August of 2009 to its member schools using a variety of sources (2). These materials provide information that will educate parents, coaches, staff members, and athletes on the prevention, management, and dangers of head injuries in interscholastic sports (3). In December of 2011, MSHSAA conducted its first annual survey of member schools and the impact of head injuries. A thirteenth survey was conducted from August 1, 2023 through June 30, 2024, to collect data from the MSHSAA member schools. Five hundred and eighty-nine schools were contacted to complete the survey during the 2023-2024 school. Working with the Brain Injury Association of Missouri, Department of Health and Senior Services, Missouri Athletic Trainers Association, Missouri School Nurses Association and Missouri School Board Association, a pilot program began for the winter and spring of 2014, Sports Concussions: Facts, Fallacies and New Frontiers. The program was conducted in five regional sites presenting a one-day seminar educating staff members, coaches, nurses and athletic trainers on the new research and policies pertaining to head injuries. Because of the great success and attendance of the program, we are hopeful this partnership continues in future years.

Harvey Richards, retired Associate Executive Director formerly in charge of Sports Medicine for MSHSAA, was a part of the state legislative process for the head injury bill (4). Greg Stahl, retired Executive Assistant formerly in charge of Sports Medicine for MSHSAA, lead the committee (5). Dr. Jennifer Rukstad is the current Executive Director in charge of Sports Medicine for MSHSAA, responsible for the distribution of educational materials to member schools, and conducted the 2023-2024 Head Injury Survey (6).

(1) Timetable of Meetings, Appendix A

(2) Fall membership-mailing, e-mails, website (mshsaa.org), district in-services

(3) Educational packet for member schools, Appendix B

(4) Harvey Richards, Retired Associate Executive Director

(5) Greg Stahl, Retired Assistant Executive Director

(6) Dr. Jennifer Rukstad, Executive Director, 1 N Keene St., Columbia, MO 65201; (573) 875-4880

2023-2024 Head Injury Survey

School Level	Total Schools			Completed Survey			Did Not Complete the Survey			% of Member Schools that Completed Survey		
	2024	2023	2022	2024	2023	2022	2024	2023	2022	2024	2023	2022
High Schools 9-12 and Combined Schools 7-12	589	588	586	569	559	542	20	29	44	96.6%	95.1%	92.5%

Use of Online Video

The National Federation of High School Activities (NFHS) has produced and made available for free, the online course “Concussions in Sports.” MSHSAA has approved this course for coaches to take as their educational component of the law. Many school districts continue to view this course as an in-service with the entire coaching staff, while other school districts have coaches complete the course individually to meet the by-law requirement for completing concussion education. For the year July 1, 2023 through June 30, 2024, 15,144 online courses were completed in Missouri.

The next table reflects the number of participants for each sport and/or activity by our member schools. This number will include duplicates for students who are in multiple activities. Music/Band, Sideline Cheerleading (Spirit) and Dance begin in the fall, but some schools will only participate in the winter or spring. The following table reflects the participation rates for both the 2022-2023 and 2023-2024 school years.

High School Sport/Activity	Participants	
	2023-2024	2022-2023
11-man Football	20,929	21,060
8-man Football	1,040	944
Baseball	14,573	14,832
Basketball-Boys	13,149	13,258
Basketball-Girls	8,588	8,980
Bass Fishing	152	300
Bowling	125	151
Chess	94	159
Cross Country-Boys	5,287	5,057
Cross Country-Girls	3,972	3,841
Dance/Pom Team	2,643	2,737
Esports	1,359	897
Field Hockey	1,022	1,137
Golf-Boys	4,583	4,289
Golf-Girls	2,341	2,222
Lacrosse-Girls	1,520	1,403
Music Activities (All)	50,548	51,258
Scholar Bowl	5,104	5,452
Sideline Cheerleading (Spirit)	9,419	9,298
Soccer-Boys	8,629	8,467
Soccer-Girls	7,878	7,661
Softball-Girls	8,682	9,003
Speech/Debate/Theatre	7,763	7,884
Stunt	76	0
Swimming and Diving-Boys	1,735	1,734
Swimming and Diving-Girls	2,755	2,770
Target Shooting	684	657
Tennis-Boys	3,565	3,502
Tennis-Girls	4,725	4,451
Track and Field-Boys	16,575	15,843
Track and Field-Girls	13,385	12,868
Volleyball-Boys	2,012	1,576
Volleyball-Girls	11,028	11,049
Water Polo	541	552
Wrestling-Boys	8,014	7,339
Wrestling-Girls	2,640	2,342
Totals	247,135	242,973

NOTE: All Music Activities include Choir, Concert Band, Marching Band and Orchestra

High School Sport/Activity	Total Participation
Sport	169,244
*Taking into Account 20% Duplication of Athletes	33,849
Total Adjustment Participation Sport	135,395
Activity	77,891
*Taking into Account 20% Duplication of Students	15,578
Total Adjustment Participation Activity	62,313
Total Adjustment Participation Sport/Activity	197,708

*20% Duplication is only an estimate and not an actual number

Data Collected

Schools were asked to provide information that related to possible head injuries. If signs or symptoms of a head injury were present, the student was to be withheld from that sport and or activity for a minimum of 24 hours and must have been seen by a medical professional. They must also provide to the school a **Return to Play** form before return to the sport or activity. The information below reflects those students who had to see a medical professional and provide a **Return to Play** form. Not all incidents would have resulted in a concussion.

HIGH SCHOOL ACTIVITIES

Activity	Activity Related	Non-Activity Related	Days/Class Act	Days/Class Non-Act	Days Missed Activity	Days Missed Non-Act	Diagnosed Activity	Diagnosed Non-Act	School Reporting	Schools Participating
Scholar Bowl	0	0	0	0	0	0	0	0	0	415
Sideline Cheer	371	32	511	37	5389	388	300	24	163	531
Music Activities	14	9	2	12	127	66	10	8	16	529
Dance/Pom	28	4	22	5	277	53	18	3	23	211
Speech/Debate/Theatre	0	0	0	0	0	0	0	0	0	221
Bass Fishing	0	0	0	0	0	0	0	0	0	21
Bowling	0	0	0	0	0	0	0	0	0	10
Chess	0	0	0	0	0	0	0	0	0	16
Target Shooting	1	0	1	0	10	0	0	0	1	38
Esports	0	0	0	0	0	0	0	0	0	110
TOTAL	413	45	535	54	5793	507	328	35	202	2102

HIGH SCHOOL SPORTS

Activity	Sport Related	Non-Sport Related	Days/Class Sport	Days/Class Non-Sport	Days Missed Sport	Days Missed Non-Sport	Diagnosed Sport	Diagnosed Non-Sport	School Reporting	Schools Participating
Baseball - Spring	112	18	80	24	747	101	68	13	95	509
Baseball - Fall	2	1	2	0	2	10	0	1	3	101
Basketball - Boys	234	20	189	63	1604	211	148	15	154	582
Basketball - Girls	293	22	245	27	2515	281	228	17	185	544
Cross Country - Boys	3	9	0	12	18	87	2	6	10	460
Cross Country - Girls	2	6	0	3	12	90	1	6	7	437
Field Hockey	13	2	8	2	128	21	10	2	8	30
11-Man Football	1566	41	1105	74	13807	410	1223	30	271	311
8-Man Football	73	3	72	3	356	14	46	2	30	45
Golf – Boys	5	2	2	5	21	32	4	2	6	347
Golf - Girls	1	5	0	4	0	27	0	4	5	245
Lacrosse - Girls	55	5	31	4	503	64	44	4	24	38
Soccer - Boys	272	16	154	7	1884	113	188	14	143	242
Soccer – Girls	341	22	280	28	2756	291	261	19	143	245
Softball - Girls Fall	130	13	104	5	1073	102	89	9	93	326
Softball - Girls Spring	23	4	16	5	89	31	12	3	18	144
Stunt - Girls	1	0	1	0	9	0	1	0	1	5
Swim/Diving - Boys	2	4	0	7	21	36	2	4	6	119
Swim/Diving - Girls	10	7	17	7	148	125	9	7	15	142
Tennis-Boys	5	2	0	2	26	11	4	2	7	180
Tennis - Girls	8	2	7	5	58	21	6	2	8	189
Track/Field (B) Spring	23	12	18	4	222	79	16	7	32	528
Track/Field (G) Spring	27	23	22	38	350	299	22	20	42	528
Volleyball - Boys	18	2	6	1	128	8	12	2	15	82
Volleyball - Girls	186	27	164	41	1560	290	140	25	117	457
Water Polo - Boys	12	0	0	0	84	0	9	0	8	20
Water Polo - Girls	9	0	19	0	166	0	9	0	6	10
Wrestling - Boys	357	16	241	8	3965	160	274	9	139	250
Wrestling – Girls	196	8	191	27	2400	230	156	6	89	225
TOTAL	3979	292	2974	406	34652	3144	2984	231	1680	7341

2023-2024 Concussion Survey Results

Sports	Suspected Sport Head Injuries	Number of Days Sport was Missed	Number of Days Class Missed
Male	2,697	23,013	1,877
Female	1,282	11,639	1,097
Total	3,979	34,652	2,974
Activities	Suspected Activity Head Injuries	Number of Days Activity was Missed	Number of Days Class Missed
Total	413	5,793	535
GRAND TOTAL	4,392	40,445	3,509

There was a total of 2,697 males and 1,282 females held out of practices and contests due to a “suspected” head injury, for a total of 23,013 (males) and 11,639 (females) days of missed participation. This means that the male athletes were held out an average of 8.53 days per incident, and the female athletes also were held out an average of 9.08 days per incident. This does show a good correlation to the gradual return-to-play guidelines, which indicates at a minimum a five-day to seven-day return rate. The number of days that a student missed class time still remains a low number compared to the total number of days missed in the sport or activity practice/contest.

2023-2024 Top 7 Head Injury Sports/Activities	
Sport/Activity	Diagnosed Head Injuries
Football	1,269
Sideline Cheerleading	300
Wrestling (B)	274
Soccer (G)	261
Soccer (B)	188
Wrestling (G)	156
Basketball (B)	148

2022-2023 Top 7 Head Injury Sports/Activities	
Sport/Activity	Diagnosed Head Injuries
Football	1,280
Sideline Cheerleading	296
Wrestling (B)	284
Soccer (G)	255
Basketball (G)	230
Soccer (B)	181
Volleyball (G)	162

Note: The number of participants in the sport specific is up but the overall number of head injuries has decreased in comparison to the previous school year

2022-2023 Percentage of Head Injuries per Total Occurrences	
Sport/Activity	% of total reported Head Injuries
Football	28.9%
Sideline Cheerleading	6.8%
Wrestling (B)	6.2%
Soccer (G)	5.9%
Soccer (B)	4.3%
Wrestling (G)	3.6%
Basketball (B)	3.4%

Concussion Rates per 10,000 athletic exposures From High School RIO Surveillance Study	
Sport/Activity	Rate
Football	7.23
Soccer (G)	5.91
Sideline Cheerleading	5.33
Wrestling (B)	4.85
Basketball (G)	4.40
Soccer (B)	2.09
Volleyball (G)	1.66

MSHSAA Athletic exposure was calculated from the first day of practice to the end of Districts for that sport. This is not a true actual count of participation but very accurate assumption. Example:

Football had on the average 84 days of practice and/or contests.
 $84 \times 21,969$ participants = 1,845,396 exposures.
 1,269 reported head injuries.

$$\frac{1,269}{1,845,396} = \frac{X}{10,000}$$

MSHSAA – Top 7 Concussion in Sports/Activities Concussion Rates per 10,000 Athletic Exposures		
Sport/Activity	*Rate #1	**Rate #2
Football	8.88	6.88
Sideline Cheerleading	4.92	3.98
Wrestling (B)	5.12	3.93
Soccer (G)	6.01	4.60
Soccer (B)	4.04	2.79
Wrestling (G)	8.53	6.79
Basketball (B)	1.89	1.20

*Rate #1: Student athletes removed from participation due to suspected concussion

*Rate #2: Student athletes removed from participation due to diagnosed concussion

There were several questions asked on this year's survey:

1. Does your school have a local policy-expectation for collecting additional medical information for a student athlete that is longer accounted for on the new MSHSAA Medical Eligibility Form (physical) or on the Annual Documentation Requirements forms?
2. Has your school fully implemented the use of Wet Bulb Globe Temperature (WBGT) for navigating environmental conditions (heat/humidity) as it relates to practices and games being permitted to occur or being delayed/suspended, postponed or cancelled?
3. If your school has fully implemented the use of Wet Bulb Globe Temperature (WBGT), how often do you feel that your school has made modifications to practices and/or games based on WBGT readings.
4. Which of the following does your school use to make determinations on the suspension, postponement or cancellation of practices or games when questionable levels of heat and humidity are present?
5. Which of the following does your school use to meet the requirements in bylaw 3.1 for every coach/director to complete CPR/AED training?
6. Does your school practice/simulate your Emergency Action Plans that you have in place for each venue/facility of which you host athletic or activities?

Below are the results from these questions:

High Schools (9-12) and Combined Schools (7-12) Responses		
Question	Answer	Number of Responses
Does your school have a local policy-expectation for collecting additional medical information for a student athlete that is longer accounted for on the new MSHSAA Medical Eligibility Form (physical) or on the Annual Documentation Requirements forms?	Yes	248
	No	309
Has your school fully implemented the use of Wet Bulb Globe Temperature (WBGT) for navigating environmental conditions (heat/humidity) as it relates to practices and games being permitted to occur or being delayed/suspended, postponed or cancelled?	Yes	488
	No	69
If your school has fully implemented the use of Wet Bulb Globe Temperature (WBGT), how often do you feel that your school has made modifications to practices and/or games based on WBGT readings?	Not applicable – We have not used the MSHSAA recommendation for WBGT	51
	We have modified our practice or game schedules several times due to a WBGT reading	211
	We have modified our practice or game schedules a few times due to a WBGT reading	272
	We have never modified a practice or game schedule due to a WBGT reading	23
Which of the following does your school use to make determinations on the suspension, postponement or cancellation of practices or games when questionable levels of heat and humidity are present?	MSHSAA WBGT Guidelines and Recommendations	467
	Heat Index	59
	Ambient Temperature	1
	Weather Advisories	30
Which of the following does your school use to meet the requirements in bylaw 3.1 for every coach/director to complete CPR/AED training?	Hands On, In Person Training Setting	271
	On Line Training	286
Does your school practice/simulate your Emergency Action Plans that you have in place for each venue/facility of which you host athletic or activities?	Yes	332
	No	225

Educational materials were distributed to all member schools and are available for the public to access through our website (www.mshsaa.org). Awareness of this serious issue has come to the forefront. Several schools have requested

an in-service to educate their coaching staff, with professionals conducting the program. Our staff, along with several others, has put programs in place to continue the educational effort and stay abreast of any new research available.

MSHSAA continues to support the Brain Injury Association of Missouri in putting together a program at various locations throughout the state of Missouri: Sports Concussions: Facts, Fallacies and New Frontiers.

MSHSAA will conduct an annual survey during each summer to collect yearlong data. The Sports Medicine Committee will evaluate the questions and the report.

APPENDIX A

2010-2024 Timetable of Meetings

Meeting	Location	Date
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	April 28, 2010
NFHS Summer Meeting Sports Medicine Committee		July 6-9, 2010
Parkway School District Concussion Presentation	St. Louis	August 12, 2010
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	January 6, 2011
Concussion Bill	Capitol, Jefferson City	January 11, 2011
Meeting – House Bill 300	Capitol, Jefferson City	February 7, 2011
Phone Conference - House Bill 300		February 25, 2011
Press Conference House Bill 300	St. Louis Children's Hospital	March 4, 2011
Phone Conference - House Bill 300		March 7, 2011
NFHS Summer Meeting - Sports Medicine Committee	Philadelphia, Pennsylvania	June 27 – July 1, 2011
Conference Call - Concussions	MSHSAA Office	August 16, 2011
Concussion Meeting	MSHSAA Office	August 25, 2011
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	January 5, 2012
Conference Call - Adult Brain Injury (MO Dept. of Health/Sr. Svc.)		January 19, 2012
Conference Call - Adult Brain Injury (MO Dept. of Health/Sr. Svc.)		February 14, 2012
St. Louis Brain Association Meeting	St. Louis	March 1, 2012
Mercy Sports Medicine Conference Exertional Heat Illnesses		March 30-31, 2012
Adult Brain Injury (MO Dept. of Health/Sr. Svc.)	MSHSAA Office	August 30, 2012
University of Missouri Research - Survey of all Injuries		June 1, 2012
Coaches Training Meeting - Head/Spinal Injuries	St. Luke's College of Health Sciences - Chillicothe	October 12, 2012
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	December 13, 2012
Meeting with Dr. Hubbard, St. Luke's College of Health Sciences	MSHSAA Office	April 3, 2013
Brain Injury Association of Missouri - Conference Call		April 16, 2013
University of Missouri Research - Survey of all Injuries		June 2, 2013
NFHS Summer Meeting - Sports Medicine Committee	Denver, Colorado	June 24-28, 2013
Brain Injury Association of Missouri - Annual Meeting Planning	Stoney Creek Inn, Columbia	September 6, 2013
Coaches Training Meeting	St. Luke's College of Health Sciences - Chillicothe	October 2, 2013
St. Luke's College of Health Sciences - Conference Call		October 23, 2013
University of Missouri Journalism - Concussion Interview - Conference Call		November 12, 2013
NFL – Chiefs - Head's Up Mom's Football Safety Clinic	Kansas City Chiefs Facility	December 3, 2013
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	December 12, 2013
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Springfield	January 14, 2014
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Kansas City	January 22, 2014
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Columbia	January 27, 2014
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	St. Louis	February 4, 2014
NFHS Summer Meeting - Sports Medicine Committee	Boston, Massachusetts	June 27 – July 2, 2014
Summer's AD Workshop - Emergency Action Planning		July 31, 2014
Brain Injury Association of Missouri - Concussion Seminar Planning	Stoney Creek Inn, Columbia	October 8, 2014
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	December 11, 2014
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Springfield	January 16, 2015
NFHS Football Meeting	Indianapolis, Indiana	January 23-25, 2015

Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Columbia	January 27, 2015
Missouri United Schools Insurance Council - Concussion Seminar	Lake of the Ozarks	January 29-30, 2015
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	St. Louis	February 5, 2015
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Kansas City	February 12, 2015
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	February 18, 2015
USA/NFL Football Meeting	Indianapolis, Indiana	February 22, 2015
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Cape Girardeau	February 26, 2015
USA/NFL Football Meeting	New York, New York	March 26-27, 2015
MIAAA Conference - Concussion Information Booth/Heads Up Football	Lake Ozark	April 10-14, 2015
Sports Medicine Advisory Committee Meeting - Overuse Injuries in Baseball	Indianapolis, Indiana	June 8-10, 2015
NFHS Summer Meeting - Sports Medicine Committee	New Orleans, Louisiana	June 26 – July 3, 2015
Officiate Missouri Day	St. Louis	July 24-25, 2015
SERC Sports Medicine Symposium	Kansas City	August 1, 2015
Brain Injury Association - Statewide Conference Call		August 18, 2015
KBIA Radio Interview - Athletic Trainers at High School Sporting Events		September 18, 2015
Brain Injury Association Meeting	St. Louis	September 23, 2015
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	December 10, 2015
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Columbia	February 17, 2016
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Cape Girardeau	February 18, 2016
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	St. Louis	February 22, 2016
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Springfield	February 25, 2016
USA/NFL Football Meeting	Indianapolis, Indianapolis	March 21-23, 2016
MIAAA Conference - Concussion Information Booth	Lake Ozark	April 8-12, 2016
NFHS Summer Meeting - Sports Medicine Committee	Reno, Nevada	June 28 – July 3, 2016
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	December 3, 2016
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	St. Louis	January 26, 2017
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Kansas City	February 2, 2017
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Columbia	February 9, 2017
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Springfield	February 23, 2017
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Cape Girardeau	March 2, 2017
Solutions for Safety in Sports Seminar	Kansas City	March 28-29, 2017
MIAAA Conference - Concussion Information Booth – Head Injury Survey Information	Lake Ozark	April 7-11, 2017
NFHS Summer Meeting - Sports Medicine Committee	Providence, Rhode Island	June 28 – July 3, 2017
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	September 5, 2017
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	St. Louis	January 29, 2018
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Columbia	February 2, 2018
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Cape Girardeau	February 6, 2018
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Springfield	February 8, 2018
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Kansas City	February 12, 2018
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	March 1, 2018
MIAAA Conference - Concussion Information Booth – Head Injury Survey Information	Lake Ozark	April 8-10, 2018

NFHS SMAC Summit	Indianapolis, Indiana	April 21-23, 2018
NFHS Summer Meeting - Sports Medicine Committee	Chicago, Illinois	June 27-July 3, 2018
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	September 10, 2018
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	St. Louis	February 26, 2019
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	February 28, 2019
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers	Kansas City	March 4, 2019
Sports Concussion: Facts, Fallacies and New Frontiers - Brain Injury Association	Columbia	March 11, 2019
MIAAA Conference - Concussion Information Booth – Head Injury Survey Information	Lake Ozark	April 7-9, 2019
NFHS Summer Meeting - Sports Medicine Committee	Indianapolis, Indiana	June 26-July 2, 2019
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	September 16, 2019
Brain Injury Association - Sports Concussion: Facts, Fallacies and New Frontiers – Central MO	Columbia	February 7, 2020
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	March 15, 2020
MIAAA Conference - Concussion Information Booth – Head Injury Survey Information	Lake Ozark	Postponed – COVID19
NFHS Summer Meeting - Sports Medicine Committee	Via Zoom	June 26 - July 2, 2020
MSHSAA Sports Medicine Advisory Committee Meeting - Sports Medicine Committee - COVID Planning Meeting	Via Zoom	June 4, 2020
MSHSAA Sports Medicine Advisory Committee Meeting	Via Zoom	September 3, 2020
MSHSAA Sports Medicine Advisory Committee Meeting	Via Zoom	March 25, 2021
MIAAA Conference - Concussion Information Booth – Head Injury Survey Information	Lake Ozark	April 11-13, 2021
NFHS Summer Meeting - Sports Medicine Committee	Orlando, Florida	June 28 - July 2, 2021
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	September 2, 2021
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	March 24, 2022
MIAAA Conference - Concussion Information Booth – Head Injury Survey Information	Lake Ozark	April 3-5, 2022
NFHS Summer Meeting - Sports Medicine Committee	San Antonio, Texas	June 28 - July 2, 2022
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	September 1, 2022
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	March 22, 2023
NFHS Summer Meeting - Sports Medicine Committee	Seattle, Washington	June 28-July 1, 2023
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	August 24, 2023
Brain Injury Association – Facts, Fallacies & New Frontiers – Central MO	MSHSAA Office	February 29, 2024
MSHSAA Sports Medicine Advisory Committee Meeting	MSHSAA Office	March 20, 2023
NFHS Summer Meeting - Sports Medicine Committee	Boston, Massachusetts	June 28-July 2, 2024

APPENDIX B

MSHSAA Broadcast Email

TO: Athletic Directors, District Athletic Directors, Athletic Trainers, School Nurses - High Schools (9-12) and Combined Schools (7-12)
FROM: Dr. Jennifer Rukstad, Executive Director - Sports Medicine
SUBJECT: MSHSAA Head Injury Report/Survey: 2023-2024 SCHOOL YEAR

This email is to remind you that your school must complete information on head injuries that occur in your school district during the 2023-2024 school year in order for our state activities association to be in compliance with **House Bill 300 (Brain Injury Prevention Act)**. This information is used to produce a report that is sent to the State Capitol and posted to the Sports Medicine page at www.mshsaa.org, available to all schools, parents and general public.

Head Injury Reporting System: As was the case last year, the 2023-2024 MSHSAA Head Injury Report/Sports Med Survey is again located on the MSHSAA website which allows you go into the report after each season (Fall/Winter/Spring) and record your head injury data by sports. The Head Injury Report/Sports Med Survey can be accessed by logging on to your school's home page, and selecting the link titled "Head Injury Reporting/Sports Med Survey", which is posted under the "Account" category. The MSHSAA Head Injury Report/Sports Med Survey consists of two separate tasks, **(1) Head Injury Reporting tab**, used to report the actual number of head injuries by sport, and **(2) Sports Medicine Survey tab**, used to provide feedback on Sport Medicine issues that impact interscholastic sports/activities. **NOTE: Again, the neat feature about this reporting system is that you can go to the "Head Injury Reporting" tab multiple times during a school year to update your data on head injuries. For example, you can use the Head Injury Reporting tab after each sports season.... Fall, Winter, Spring to report your head injury data seasonally rather all at once in May at the conclusion of your spring season.**

As in the past, the MSHSAA Head Injury Report/Sports Med Survey can be accessed and completed by the Athletic Director, Athletic Trainer, School Nurse, or a combination of this group, so long as these individuals are posted on your school's Administrator page on the MSHSAA website which allows them login access to your school home page on the MSHSAA website. Regardless of who actually completes this survey, please make sure to involve the school nurse and/or athletic trainer so that we may have the most accurate data/information accounted for in this survey. **Your completion of this survey is "mandatory" in order for the MSHSAA to remain compliant with the expectations outlined in House Bill 300. The MSHSAA will be tracking the completion of this survey by each MSHSAA member school.**

The 2023-2024 MSHSAA Head Injury Report/Survey is now open to submit current data/responses. The deadline for final completion is June 30, 2024.

Thanking you in advance,

Jen Rukstad
MSHSAA Executive Director – Sport Medicine
Missouri State High Activities Association

SPORTS MEDICINE REMINDERS FOR ATHLETIC DIRECTORS FALL SEASON

(NEW) Medical Emergency Action Plan (EAP) Required for Hosting Postseason

- ❖ Beginning with the 2023-2024 School Year, prior to final approval for a school to host a postseason contest/event, a Medical Emergency Action Plan (EAP) for all state series sites and venues must be confirmed/uploaded to the MSHSAA website prior to hosting. The Medical EAP shall specifically require an onsite AED and use of MSHSAA's AED Guidelines as posted on the Sports Medicine page at www.mshsaa.org. A Medical Emergency Action Plan (EAP) for the venue being used for hosting a postseason contest must be uploaded and accounted for at www.mshsaa.org. **Note: An email blast will be sent to member schools with instructions for how and where to upload the Medical EAP for each of the school's contest sites/venues.**
- ❖ Medical EAP's, as noted above, must also include the implementation of a Pre-Event/Contest Medical Planning Meeting (Medical Timeout) that uses the "Checklist" contained in the Pre-Event/Contest Medical Planning Meeting Procedures document as posted on the Sports Medicine page at www.mshsaa.org.
- ❖ This meeting should happen prior to each athletic event and at each venue when home games are held. The meeting is coordinated by the home team administrator but can be delegated to the Athletic Trainer or other qualified medical personnel. The Medical Timeout meeting should include the following: onsite administrators for both schools, medical personnel for both schools, game officials, EMS personnel if present, security/law enforcement if present, any coach who is designated as an active part of the host school's EAP, any other personnel as determined by participating schools.

(NEW) Pre-participation Physical Evaluation Forms – Released April 2023

- ❖ Make sure that you are issuing the NEW Preparticipation Physical Forms posted under MSHSAA Resources on the Sports Medicine page at www.mshsaa.org. **NOTE:** Per email broadcast sent out in April and May of 2023, school are now collecting the Medical Eligibility Form (page 5) of the new PPE forms.
- ❖ There are no exemptions or relief to MSHSAA bylaws requiring all students to have a current/valid physical prior to participating in All Sports, Spirit/Cheer or Marching Band.
- ❖ All students participating must have a valid physical prior to being allowed to practice in any manner at the start of the defined sport season. **NOTE: The requirement for a student to have a valid physical during the summer participation continues to be a local school decision.**
- ❖ Go to the Sports Medicine page at www.mshsaa.org and use the following link listed under MSHSAA Resources to review the details of the current PPE requirements:
-MSHSAA Pre-participation Physical Evaluation Forms-Process (All Sports, Spirit & Marching Band) - Revised April 2023

(NEW) Pre-participation Documentation-Annual Requirements

- ❖ Pre-participation Documentation-Annual Requirements must now be completed/collected for ALL students participating in ANY Sport and/or Activity.
- ❖ Documentation that must be distributed to and collected from all students participating in ANY sport and/or activity now includes: Current Health and Injury Update, Emergency Contact Information, Parent Permission/Insurance, Student Agreement, Parent/Student Acknowledgment for Concussion Education/Materials, Parent/Student Acknowledgment of Injury/Risk Disclosure. **NOTE: These forms MUST be completed ANNUALLY and collected prior to a student participating.**
- ❖ Go to the Sports Medicine page at www.mshsaa.org and use the following link listed under MSHSAA Resources to review the details of the current Documentation-Annual Requirements:
-MSHSAA Pre-participation Documentation – Annual Requirements (All Sports & All Activities) - Revised April 2023

Concussion Information and Materials

- ❖ **It is mandatory that each member school (Middle Schools and High Schools) of the MSHSAA provide Concussion Education to their coaches, players and parents ANNUALLY.** There are a number of different ways to meet this requirement, whether that be scheduling coaches/players/parent meetings and showing the free NFHS Concussion Education course/video or whether that be choosing to distribute Concussion Education information to each of these three groups. **Several resources for Concussion Education are located on the Sports Medicine page at www.mshsaa.org.**
Concussion Education Resources:
<https://www.mshsaa.org/resources/PDF/A%20Parent's%20-%20Guardian's%20Guide%20to%20Concussion%20-%20April%202019.pdf>
<https://nfhslearn.com/courses/concussion-in-sports-2>
- ❖ **Concussion Return to Play Form (Mandatory):** When your school has a student that has been removed from a practice or game/contest due to signs and symptoms of a concussion and is then diagnosed with a concussion, your school must use the MSHSAA Concussion Return To Play Form/Guidelines in consultation with an
- ❖ MD/DO/PAC/LAT/ARNP/Neuropsychologist in order for the student return to practice/competition. **The use of this form is critical in an effort to protect the student athlete's well-being and the school's position of liability.**
Return To Play Form:
<https://www.mshsaa.org/resources/PDF/CURRENT%20MSHSAA%20Concussion%20Return%20to%20Play%20Form.pdf>
- ❖ **Athletic Directors** must keep accurate records and documentation of concussion education for coaches, athletes and parents and be able to provide it to MSHSAA when requested.

Mandatory Concussion/Head Injury Reporting

- ❖ All schools are required by HB300 to track any suspected head injuries for students who participate in sports or activities throughout the school year.
- ❖ **ANNUAL HEAD INJURY REPORT/SPORTS MEDICINE SURVEY:** Athletic Directors, Athletic Trainers and School Nurses **MUST** track any and all head injuries sustained by a student during every season for each sport and activity during the school year. During your tracking of head injuries, make sure to note following for every head injury:
 1. Was the head injury diagnosed as a concussion, or not a concussion?
 2. Was it a sport related or non-sport related head injury?
 3. How many days of class time was missed due to the head injury?
- ❖ **NOTE: At the conclusion of the Fall, Winter and Spring sport/activity seasons, the school's Athletic Director, Athletic Trainer or School Nurse will login to their school's homepage on the MSHSAA website and under the "ADMIN" tab select the "Head Injury Reporting/Sports Med Survey" link to access the portal for entering head injury data for each sport/activity season.** NOTE: In order for the Athletic Trainer or School Nurse to have login access for completing the Head Injury Report, they **MUST** be listed on the school's "Administrators" page as an AT or School Nurse.

SPORTS MEDICINE REMINDERS FOR ATHLETIC DIRECTORS WINTER SEASON

(NEW) Medical Emergency Action Plan (EAP) Required for Hosting Postseason

- ❖ Beginning with the 2023-2024 School Year, prior to final approval for a school to host a postseason contest/event, a Medical Emergency Action Plan (EAP) for all state series sites and venues must be confirmed/uploaded to the MSHSAA website prior to hosting. The Medical EAP shall specifically require an onsite AED and use of MSHSAA's AED Guidelines as posted on the Sports Medicine page at www.mshsaa.org. A Medical Emergency Action Plan (EAP) for the venue being used for hosting a postseason contest must be uploaded and accounted for at www.mshsaa.org. **Note: An email blast will be sent to member schools with instructions for how and where to upload the Medical EAP for each of the school's contest sites/venues.**
- ❖ Medical EAP's, as noted above, must also include the implementation of a Pre-Event/Contest Medical Planning Meeting (Medical Timeout) that uses the "Checklist" contained in the Pre-Event/Contest Medical Planning Meeting Procedures document as posted on the Sports Medicine page at www.mshsaa.org.
- ❖ This meeting should happen prior to each athletic event and at each venue when home games are held. The meeting is coordinated by the home team administrator but can be delegated to the Athletic Trainer or other qualified medical personnel. The Medical Timeout meeting should include the following: onsite administrators for both schools, medical personnel for both schools, game officials, EMS personnel if present, security/law enforcement if present, any coach who is designated as an active part of the host school's EAP, any other personnel as determined by participating schools.

(NEW) Pre-participation Physical Evaluation Forms – Released April 2023

- ❖ Make sure that you are issuing the NEW Preparticipation Physical Forms posted under MSHSAA Resources on the Sports Medicine page at www.mshsaa.org. **NOTE: Per email broadcast sent out in April and May of 2023, school are now collecting the Medical Eligibility Form (page 5) of the new PPE forms.**
- ❖ There are no exemptions or relief to MSHSAA bylaws requiring all students to have a current/valid physical prior to participating in All Sports, Spirit/Cheer or Marching Band.
- ❖ All students participating must have a valid physical prior to being allowed to practice in any manner at the start of the defined sport season. **NOTE: The requirement for a student to have a valid physical during the summer participation continues to be a local school decision.**
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(NEW) Pre-participation Documentation-Annual Requirements

- ❖ Pre-participation Documentation-Annual Requirements must now be completed/collected for ALL students participating in ANY Sport and/or Activity.
- ❖ Documentation that must be distributed to and collected from all students participating in ANY sport and/or activity now includes: Current Health and Injury Update, Emergency Contact Information, Parent Permission/Insurance, Student Agreement, Parent/Student Acknowledgment for Concussion Education/Materials, Parent/Student Acknowledgment of Injury/Risk Disclosure. **NOTE: These forms MUST be completed ANNUALLY and collected prior to a student participating.**
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Concussion Information and Materials

- ❖ **It is mandatory that each member school (Middle Schools and High Schools) of the MSHSAA provide Concussion Education to their coaches, players and parents ANNUALLY.** There are a number of different ways to meet this requirement, whether that be scheduling coaches/players/parent meetings and showing the free NFHS Concussion Education course/video or whether that be choosing to distribute Concussion Education information to each of these three groups. **Several resources for Concussion Education are located on the Sports Medicine page at www.mshsaa.org.**
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<https://nfhslearn.com/courses/concussion-in-sports-2>
- ❖ **Concussion Return to Play Form (Mandatory):** When your school has a student that has been removed from a practice or game/contest due to signs and symptoms of a concussion and is then diagnosed with a concussion, your school must use the MSHSAA Concussion Return To Play Form/Guidelines in consultation with an
- ❖ MD/DO/PAC/LAT/ARNP/Neuropsychologist in order for the student return to practice/competition. **The use of this form is critical in an effort to protect the student athlete's well-being and the school's position of liability.**
Return To Play Form:
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- ❖ **Athletic Directors** must keep accurate records and documentation of concussion education for coaches, athletes and parents and be able to provide it to MSHSAA when requested.

Mandatory Concussion/Head Injury Reporting

- ❖ All schools are required by HB300 to track any suspected head injuries for students who participate in sports or activities throughout the school year.
- ❖ **ANNUAL HEAD INJURY REPORT/SPORTS MEDICINE SURVEY:** Athletic Directors, Athletic Trainers and School Nurses **MUST** track any and all head injuries sustained by a student during every season for each sport and activity during the school year. During your tracking of head injuries, make sure to note following for every head injury:
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Emergency Action Planning Guide

- ❖ On the MSHSAA web site under Sports Medicine is information for your school to set up and implement the “Anyone Can Save a Life” program. This program is free of charge. If you have any question, please contact MSHSAA.
- ❖ It is absolutely necessary that each member school implements an Emergency Action Plan for each sport, activity and venue at your school. **The MSHSAA promotes to our schools the program titled “ANYONE CAN SAVE A LIFE”, which is a highly effective Emergency Action Plan Program being used at the middle school and high school level across the country.**
- ❖ **Emergency Action Planning:** <http://www.mshsaa.org/resources/pdf/emergencyPlanning.pdf>

Wrestling Weight Management Program

- ❖ All Wrestling schools must use a certified weight assessor to complete weight assessments on their wrestlers prior to a wrestler competing in competition.
- ❖ **All new weight assessors must be certified during September/October preceding the 2023-2024 wrestling season.**
- ❖ See Wrestling page at www.mshsaa.org for more details regarding the mandatory Wrestling Weight Management Program.

Online Sports Medicine Information

- ❖ All Sports Medicine information is located online by going to the MSHSAA website (www.mshsaa.org) and clicking on the Sports Medicine tab in the blue-ribbon bar.

SPORTS MEDICINE REMINDERS FOR ATHLETIC DIRECTORS SPRING SEASON

(NEW) Medical Emergency Action Plan (EAP) Required for Hosting Postseason

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(NEW) Pre-participation Physical Evaluation Forms – Released April 2023

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- ❖ **Emergency Action Planning:** <http://www.mshsaa.org/resources/pdf/emergencyPlanning.pdf>

Wet Bulb Globe Thermometers (WBGT)

- ❖ The use of a Wet Bulb Globe Thermometer (WBGT) is the recognized practice for determining unsafe heat/humidity conditions for all outdoor sports, marching band and spirit. **Note: Indoor sports, such as Volleyball, are subject to these guidelines “if” air condition facilities are not used.**
- ❖ WBGT Recommendations and Guidelines, Background and Rationale are posted on the Sports Medicine page at www.mshsaa.org.

Baseball Pitching Limitations

- ❖ Each coach will be required to enter pitch counts for all pitchers at all levels into the MSHSAA website within 24 hours of the completion of all games.
- ❖ For all levels, no pitcher may pitch more than 2 consecutive days without at least one day of rest prior to their third pitching appearance.
- ❖ See MSHSAA Baseball Manual for additional details regarding pitching limitations.

CONCUSSION EDUCATION AND MANAGEMENT PROTOCOL

Education

Concussions are common in sports. The Missouri State High School Activities Association (MSHSAA) believes that education of coaches, officials, athletes, and their parents or guardians are key to safely returning a student athlete to play. Appropriate immediate care after a suspected concussion, and follow up incorporating a multi-disciplinary team that includes the coach, parent or guardian, athlete's physician, team physician and athletic trainer (if available), and school representatives, also are important for the proper management of a sport-related concussion.

Each school district will receive educational materials for coaches, athletes, parents, and school officials, required forms for student athlete participation and parent/guardian consent, and recommended medical clearance forms for return to play.

Annually, MSHSAA member school districts will ensure that every coach, student athlete, and parents or guardians of a student athlete completes a concussion and head injury information sheet and returns it to the school district prior to the student athlete's participation in practice or competition. Officials will receive training from their parent organization. Each official's organization will require annual concussion training and maintain a signed head injury information sheet for each official.

Recognition and Evaluation of the Athlete with a Concussion

1. Recognition of the signs and symptoms of a concussion is important. Every member of the team-athlete, teammates, coaches, parents or guardians, officials, athletic trainers, and team physicians have a duty to report a suspected concussion. Not all school districts have medical personnel available to cover every practice and competition; therefore, the coach is the person in the best position to protect the player and must be aware that not all student athletes will be forthcoming about their injury.
2. An official shall not be responsible for making the diagnosis of a concussion. The official can assist coaches and medical staff by recognizing signs and symptoms of a concussion and informing the coach and medical staff of their concerns.
3. The coach, (Athletic Trainer) AT, or physician on site should evaluate the athlete in a systemic fashion:
 - a. Assess for airway, breathing, and circulation (basic CPR assessment)
 - b. Assess for concussion
 - i. Any unconscious athlete should be assumed to have a severe head and/or neck injury and should have their cervical spine immobilized until a determination can be made that the cervical spine has not been injured. If no medical professional can make the assessment, the athlete should be transported to an appropriate emergency care facility.
 - ii. A conscious athlete with no neck pain can be further evaluated on the sideline.
4. An athlete experiencing ANY of the signs/symptoms of a concussion should be immediately removed from play. Signs/Symptoms of a concussion include:

PHYSICAL	COGNITIVE	EMOTIONAL
Headache	Feeling mentally "foggy"	Irritability
Nausea/Vomiting	Feeling slowed down	Sadness
Dazed/Stunned	Difficulty concentrating	More emotional
Balance problems	Difficulty remembering	Nervousness
Visual problems	Forgetful of recent information	
Fatigue	Confused about recent events	
Sensitivity to light	Answers questions slowly	
Sensitivity to noise	Repeats questions	

5. Evaluation
 - a. Following any first aid management, the medical team, or coach in the absence of medical personnel, should assess the athlete to determine the presence or absence of a concussion. The current version of the Sport Concussion Assessment Tool (SCAT) is an assessment tool that is readily available and can assist with the

assessment. The athlete should be monitored for worsening or change in signs and symptoms over the next 24 hours. Instructions should be given to the parent or guardian as to signs and symptoms that may require further or more emergent evaluation.

6. Management of a Concussion and Return to Play

- a. An athlete determined to have a concussion or have concussion-like symptoms will be removed from practice or competition and is not allowed to return to practice or competition that same day.
- b. If an athlete displays concussion-like signs or symptoms, the athlete should be assumed to have a concussion until further medical evaluation can occur. "WHEN IN DOUBT, SIT THEM OUT!"
- c. Written clearance from a physician (MD or DO), Advanced Nurse Practitioner in written collaborative practice with a physician, Certified Physician Assistant in written collaborative practice with a physician, Athletic Trainer or Neuropsychologist in written supervision of a physician must be provided prior to return to play.
- d. Following a concussion, current accepted guidelines on physical and cognitive activity should be practiced until symptoms have resolved.
- e. An athlete must be asymptomatic at rest and with exertion prior to return to play
- f. A graduated return to play progression should be followed to guide return to activity following medical clearance as outlined on the MSHSAA Concussion Return to Play form.



MISSOURI STATE HIGH SCHOOL ACTIVITIES ASSOCIATION

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