

2018-19



Section V Boys Lacrosse Coaches' Handbook

Updated: 01/30/2019

<http://blaxfive.net>

March 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				28	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

- FEB 28th — Coaches' Meeting
- MAR 4th— First Practice (V/JV)
- MAR 13th— First Scrimmages
(after 8 practices)
- MAR 14th— Rosters Due
- MAR 15th— First Games
(after 10 practices)

April 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

- APR 13-21— Break

May 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

- MAY 15th— Out of Section Records Due
- MAY 17th— Last Games (Var)
- MAY 18th— Seedings posted
- MAY 20th— Out-Bracket B & D
- MAY 21st— Quarters A & C
- MAY 22nd— Quarter B & D
- MAY 24th— Semi Finals A & C
- MAY 25th— Semi Finals B & D
- MAY 27th— Memorial Day
- MAY 28th— FINALS A & C
- MAY 29th— FINALS B & D

June 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

- JUN 1st— NYS Quarters
- JUN 5th— NYS Semis
- JUN 8th— NYS FINALS



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Paul Wilson wilson@sportsfive.net	Assistant Coordinator	Work: (585) 348-7316
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Karen Simon ksimon72@aol.com	Logistics	
Mike Torrelli mtorrelli@fairport.org	Monroe County Chairman	
LJ Russell ljrussell@genevacsd.org	Finger Lakes Chairman	
Ken DiDomineck kdidomineck@bathcsd.org	GRALL President	
Brian Hobart brianhobart@gmail.com	At Large	
John Schembri JSchembri@Penfield.edu	At Large	
Fritz Kilian fkilian@fairport.org	At Large	
Kyle Wilson kbarrett@sportsfive.net	Logistics	
Rob Cantabene rcantabene@gmail.com	GVLOA President (Liaison)	

Team Directory

TEAM	HEAD COACH	CLASS	LEAGUE
Aquinas Institute	Pat Olbrich	D	GRALL
Batavia	Trevor Rittersback	C	Independent
Bath	Ken DiDomineck	D	GRALL
Bloomfield-Honeoye	Brandon Trombley	D	Finger Lakes
Brighton	Donald Benedict	B	MC-3
Brockport	Josh Laskowski	B	MC-3
Canandaigua	Deven York	B	MC-2
Churchville-Chili	Cubby Chalmers	B	MC-2
East United	Sean Banks/Jim Tillotson	A	Independent
Eastridge	Matt Kleehammer	C	MC-3
Fairport	Mike Torrelli	A	MC-1
Gananda	Joe Sidari	D	Finger Lakes
Gates Chili	Cameron Gormel	B	MC-2
Geneva	LJ Russell	C	Finger Lakes
Greece Storm	Andy Hilton	A	MC-1
Hilton	Craig Lepiane	A	MC-1
Honeoye Falls-Lima	Jack Beaney	C	MC-3
Irondequoit	Terry Coholan	B	MC-3
Livonia-Avon	Don Manard	C	GRALL
Marcus Whitman	Jordan Trombley	D	Finger Lakes
McQuaid Jesuit	Terry Corcoran	B	GRALL
Midlakes	Ben Clement	D	Finger Lakes
Mynderse Academy	Scott Sciera	D	Finger Lakes
Newark	Matt Groot	C	Finger Lakes
Palmyra-Macedon	Joe Hill	D	Finger Lakes
Penfield	John Schembri	A	MC-1
Penn Yan	Brian Hobart	D	Independent
Pittsford	Andrew Whipple	A	MC-1
Rush-Henrietta	Tom MacMillan	A	MC-1
Webster Schroeder	Jason Mordaci	B	MC-2
Spencerport	Tim Britton	B	MC-3
Webster Thomas	Rob Ruller	B	MC-2
Victor	Jim Andre	B	MC-2
Waterloo	Matt Morrin	D	Finger Lakes
Wayne	Eric Carlsen	C	Finger Lakes

General Information

Schedules and Rosters

All Section Five Coaches are required to verify final schedules and team rosters by the due dates stated below. Coaches should send in the information by email. Additions or deletions to schedules may not be changed after this date, but dates and times can change throughout the season. Additions or deletions must be approved by Mike Simon. Rosters may change throughout the season after notifying Paul Wilson.



For **schedules** the following information is required:
Day, Date, Time, Home Team, Away Team and Location

For **rosters**, the following information is required:
Jersey Number (home and away if different), Name, Grade, Position

Required	Due on or Before
Schedules	Sunday, Feb 24th
Rosters	Thursday, March 14th

Schedules and Rosters are to be sent to **Paul Wilson** at wilson@sportsfive.net

Game Reports

Reporters from **both teams are required to send in the results** of their games as soon after the game as possible. The minimum to be reported is the score of the game. Reporters must also send in information on who scored and goalie performances so that players can get the recognition that they deserve. Coaches should delegate this responsibility for reporting and should let Paul Wilson know the name of the reporter. See "Sports Reporter" Section. Any of the contact methods listed below will be acceptable.

Email	scores@sportsfive.net
Leave message at:	(585) 348-7316
Use the Software	Contact Paul Wilson for login

The Winner Calls the Newspapers

The coach from the winning team calls the local newspaper with the score. This should be done right after reporting your score to the Section as the newspapers have strict deadlines.

Changes in Schedules

There are often weather related changes in the early part of the season. When such postponements or cancellations take place it is the responsibility of both coaches to notify Paul Wilson of the changes so that the web site and seeding databases can be up-to-date. Coaches that email changes to Sportsfive.net **two hours before game time** will have their information posted to the website before game time.

Officials

Games in Section Five are officiated by members of the Genesee Valley Lacrosse Officials Association (GVLOA). It is the home team's responsibility to notify the officials if weather or other problem forces a last minute schedule change. Unless special arrangements are made, the home team is responsible for scheduling and paying the officials. The rates for games and travel are governed by Section Five contracts and can be found on the Section Five Web Site. Login and password information is available from Frank Mangione that allow coaches and administrators access to the officials' scheduling software.

Genesee Valley Lacrosse Officials Association		
Assignors	Frank Mangione Todd Lenhard	fmangion@rochester.rr.com 585-451-4219 Lenhard@frontiernet.net 585-752-0796
Interpreter	Scott Maloney	scott.maloney@waterloocsd.org 315-704-8975
President	Rob Cantabene	rcantabene@gmail.com
Web Site:	http://www.gvloa.org/	

For scheduling issues, please contact Frank Mangione first. For rules questions, interpretations contact Scott Maloney. For any other issues, please contact Rob Cantabene.

Assignment of Officials

The following is a copy of a memo sent to all Head Coaches and their Athletic Directors.

To: Boy's Lacrosse Coaches and Athletic Directors
Fr: Frank Mangione, GVLOA
Mike Simon, Section V Boys' Lacrosse Coordinator
Da: February 2017
Re: Assignment of Officials

As we approach the start of another season, we wanted to confirm a few things that you may have not been aware of. There are times when there are conflicts between officials and coaches, teams and athletic directors. If this should arise during the course of the season, know that you have a vehicle to resolve this conflict.

Both officials and coaches / Athletic directors may request that an official be removed from working future contests. We do not want to put official in a position where they are not wanted. Additionally, officials can request that they not work at specific schools.

If this situation does arise that you would prefer an official not be assigned to your school's game, please contact both Mike Simon and Frank Mangione or Todd Lenhard with your request. **Your request must include specific reasons to support not assigning an individual official to a home game or sectional contests. We will examine the request and determine the appropriate action.**

This procedure is in place for the 2017 season, including Sectional and Regional play. of the current season. We would hope that issues can be resolved between the parties for the benefit or our athletes.

We take these matters seriously and hope you do also for the betterment of the game.

Contact Information:

Mike Simon, Section V Boys' Lacrosse Chairman
Mesimon70@aol.com
315 719-3102

Frank Mangione, GVLOA Assigner
Assignor
fmangion@rochester.rr.com

585 451-4219

Todd Lenhard, GVLOA Co-
Lenhard@frontiernet.net

585-752-0796

Sectional Tournament

Post Season Championships

The Section Five Lacrosse Tournament determines champions that move forward to the New York State tournament sponsored by the NYSPHSAA. There are four tournament classes (A, B C and D) as determined by school size (BEDS numbers). Class A schools have student enrollments of 1,050 or more. Class B schools have 750 to 1,049 students. Class C schools have 425 to 749 students and Class D schools have up to 424.



Pittsford has received approval from the Section Five Executive Committee to sponsor a "combined school" program with students from both Pittsford Sutherland and Pittsford Mendon playing on a "district team". Honeoye and Bloomfield have received permission to join as a class D team. Greece has combined all four high schools into one Class A team and Livonia and Avon have combined for a Class C team.

McQuaid's BEDS number is doubled because they are a "single gender" school. BEDS numbers can be seen on the NYSPHSAA web site, at: <http://www.nysphsaa.org/Classifications>

Classification for Section Five and New York State Tournaments

Team	Students	Team	Students
Class A (1,050 and up)		Class B (750 to 1,049)	
Greece Storm	2,518	Victor	1,018
East United	2,258	Schroeder	1,009
Pittsford	1,463	Gates Chili	1,006
Fairport	1,408	Thomas	997
Rush-Henrietta	1,202	Churchville-Chili	922
Hilton	1,076	McQuaid Jesuit	894
Penfield	1,072	Canandaigua	875
		Irondequoit	864
		Spencerport	858
		Brighton	855
		Brockport	808

Classification for Section Five and New York State Tournaments



Team	Students
Class C (425 to 749)	
Eastridge	746
HFL	562
Wayne	546
Geneva	495
Livonia-Avon	468
Newark	464
Batavia	459
Team	Students
Class D (0 to 424)	
Palmyra-Macedon	408
Midlakes	406
Aquinas	353
Waterloo	352
Penn Yan	334
Bath	325
Mynderse	285
Marcus Whitman	255
Bloomfield-Honeoye	250
Gananda	240

Section Five Tournament Brackets

The Section Five Lacrosse Tournaments will start on Monday, May 20th with out-bracket games in Class B and D and will end with the crowning of the Class B and D champions on Wednesday, May 29th.

All teams will qualify for play in one of the four tournaments. There will be out bracket games in two classes this year. Class B will have three out-bracket games on Monday, May 20th along with Class D who will play five games.

Quarter final games will be played on Tuesday, May 21st (Classes A and C) and Wednesday, May 22nd (Classes B and D) with the higher seeded teams hosting the games.

Semi final games for Classes A and C will be played on Friday, May 24th. Classes B and D semi final games will be played Saturday, on May 25th.

The Championships will be held at St John Fisher College on Tuesday, May 28th (Classes A and C) and on Wednesday May 29th for classes B and D.

See the **Tournament Page** on BLaxFive.NET for brackets, locations and times.

Tournament Seeding

For many years Section Five has used a "power based" seeding procedure which has been designed to reward teams for winning against "strong" teams while discouraging teams from seeking winning records by beating "weaker" teams.

A review of the "seeding vs winning" statistics shows that teams seeded in the upper half of the seeding almost always win, although the top teams are not always the ultimate champions. When it comes to tournament time, "anyone can win".



The system is not as complicated as it seems at first look. Perhaps the most difficult concept is that we must wait until the end of the season before knowing how the seeding will come out. This is because the final win-loss record for every team played must be determined before "seeding points" can be awarded.

Earning Points

Points earned are based on the **final** win/loss percentage for each opponent played. A team that has won 75% of its games gives its opponent 10 points if the opponent wins or 4 points if their opponent loses. A team under 75% but at least 50% gives 8 points for a win and 3 points for a loss. A team under 50% but at least 25% gives 6 points for a win and 2 points for a loss. Finally, a team under 25% gives 4 points for a win and 1 point for a loss.

The number of points earned by a team are then added together and divided by the number of games played so as to find the average points per game. The teams with the highest averages are seeded highest in the tournament.

Opponent's Final Record	Points Earned		
	A Win is Worth	A Loss is Worth	A Tie is Worth
75% or more	10	4	7
50% to 75%	8	3	6
25% to 50%	6	2	4
under 25%	4	1	3

Tie Breaking Procedure

At the end of the regular season it is possible to have two or more teams tied in their seeding average. When this happens the following tie breaking procedure is used.

Steps	Tie Breaker
First check:	Head-to Head competition (winner advances)
If still tied:	Check each team's win/loss record
If still tied:	Number of wins against .750 teams
If still tied:	Number of wins against .500 teams
If still tied:	Number of wins against .250 teams
If still tied:	Number of wins against .000 teams
If still tied:	Coin toss by Lacrosse Coordinator

An Example

The following table is an example of how the seeding average was determined for Irondequoit in 1999.

NYSHSAA - Section V							
Tournament Seeding Database				Class A			
	Date	Opponent (W/L %)	Seeding Pts	Irondequoit	Opponent	Win	Lost
1	04/01/1999	Canandaigua (83%)	10	4	3	1	
2	04/03/1999	Geneva (50%)	8	9	4	1	
3	04/06/1999	Brighton (44%)	6	14	1	1	
4	04/08/1999	Webster (72%)	8	9	8	1	
5	04/13/1999	Fairport (50%)	8	8	6	1	
6	04/15/1999	Penfield (56%)	8	9	5	1	
7	04/24/1999	Ithaca (69%)	8	2	1	1	
8	04/27/1999	McQuaid (44%)	6	7	1	1	
9	04/29/1999	Rush-Henrietta (17%)	4	12	3	1	
10	05/04/1999	Pittsford (100%)	4	5	14		1
11	05/06/1999	Brighton (44%)	6	10	9	1	
12	05/08/1999	Webster (72%)	3	2	3		1
13	05/11/1999	Fairport (50%)	3	3	6		1
14	05/13/1999	Penfield (56%)	8	11	9	1	
15	05/18/1999	Rush-Henrietta (17%)	4	13	3	1	
16	05/20/1999	Pittsford (100%)	4	7	14		1
			Seeding Pts	Pts Scored	Pts Given	Won	Lost
			98	125	90	12	4
		Average	6.1250	7.81	5.63	75%	

Irondequoit played 16 games in 1999 and ended their season with a 12-4 record

Average	Team	Record	Seed
7.2222	Pittsford	18-0	1
6.1250	Irondequoit	12-4	2
5.8889	Canandaigua	15-3	3
5.7778	Webster	13-5	4
5.0556	Fairport	9-9	5
4.8125	Penfield	9-7	6
4.1111	Brighton	8-10	-
3.8333	McQuaid Jesuit	8-10	-
3.2778	Rush-Henrietta	3-15	-

(75%). When they beat Canandaigua on April Fool's Day, they didn't know that at the end of the season Canandaigua would have a 15-3 record. As a result of that win Irondequoit earned 10 seeding points for beating a +75% team. Notice that later, when they beat R-H on April 29th, they earned 4 seeding points because the R-H team ended the season at under 25% (3-15).

In their next game, Irondequoit lost to Pittsford. Because Pittsford ended their season above 75%, Irondequoit earned 4 seeding points for that loss. Note that Irondequoit earned the same number of seeding points in their win against a "weak" team as they did in their loss to a "strong" team (4 points each).

When all the seeding points were added together (98 points) and divided by 16 (the number of games played) Irondequoit's average was 6.1250.

The Class A tournament was for 6 teams in 1999. The seeding is shown in the chart above.



Game Scores Are Needed

It is clear that proper seeding requires good information about games played throughout the season. The seeding procedure requires that all game results are tracked. It is particularly important to keep track of out of Section games as all games count toward seeding points.

This is why **coaches/reporters are required to report their scores after each game**. The directions for game reporting are found in this handbook or in the Coach's Area of the SportsFive.NET web site.

Team Responsibilities

There are a number of responsibilities required of a team playing in the tournament.

Each team will provide six new balls for each game. This will insure that there are an adequate number of balls for each end line. Ball retrievers will not be permitted.

Each team reaching the quarter final round must turn in a final roster which will be used for the awards count. Any over 30 will be billed to the school.

Each team will provide school personnel for supervision at the game site. These chaperones must identify themselves to the site Athletic Director or Site Chairman at each game and are expected to sit or position themselves among their fans. It is the responsibility of the participating schools to ensure that their students and fans exhibit good behavior.



Out brackets and quarter final games

The higher seeded team will play the game at home. The home team will be responsible for ticket sales, site security, field preparation, score-board operation, public address operation and score table equipment (including horns).

Semi final and Finals

The higher seeded team is the home team. Games will be played at neutral sites, but the home team will be responsible for horns for the table area.

Team Pictures for New York State Program

Pictures and rosters of the Sectional Champions can only be submitted through the MaxPreps website by team personnel. Teams must insure that their image and roster is up-to-date before the end of the sectional tournaments.

Spectators

Good sportsmanship is everyone's responsibility. Spectators at tournament contests are expected to exhibit proper behavior. Signs, banners and cheers are to be positive and supportive. Official school bands are permitted, but individual fans are not permitted to use noise makers or musical instruments at the games.

Admissions

The ticket price, set by the Section V Executive Council, is currently set at \$5.00. All prices are subject to change.

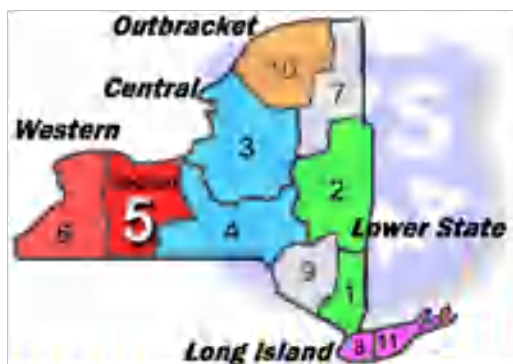
All Tournament Teams

An All Tournament Team and an MVP will be selected for each tournament and will be announced after each championship game.

NYS Tournament

NYSPHSAA Championships

After each participating section has determined their champions, games are conducted by NYS to crown State Champions in classes A, B, C and D.



There are five groups as demonstrated on the map to the left.

Western: Sections 5 and 6

Central: Sections 3 and 4

Lower State: Sections 1 and 2

Long Island: Sections 8 and 11

Out bracket: Sections 9 and 10

There are no teams playing in Section 7

Round 1 – Out bracket Games

There are a very few teams playing lacrosse in Sections 9 and 10. As of 2009 Sections 3, 4 and 10 take turns playing in the out bracket round and Sections 1, 2 and 9 take turns playing in the out bracket down state. The Western region (Sections 5 and 6) and the Long Island region no longer play in the out bracket rounds.

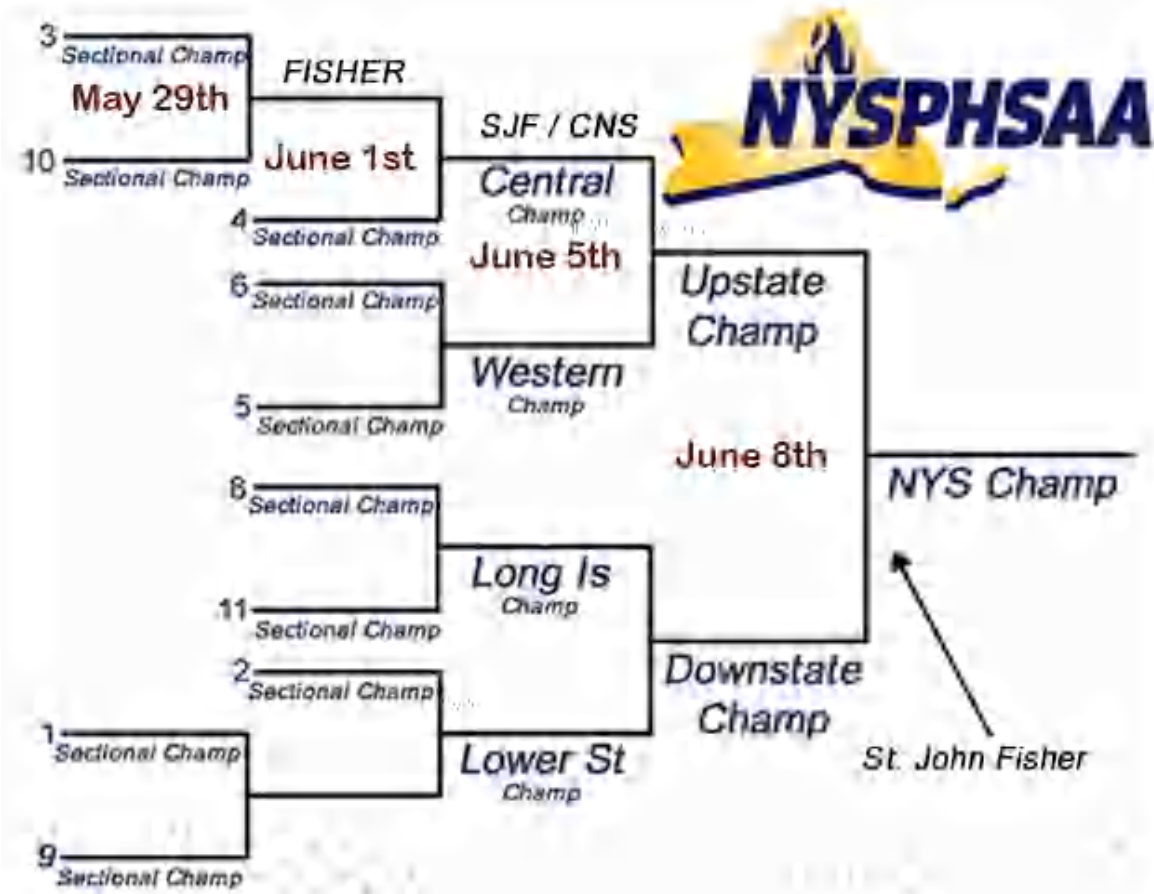
There are a very few teams playing lacrosse in Sections 9 and 10. As of 2009 Sections 3, 4 and 10 take turns playing in the out bracket round and Sections 1, 2 and 9 take turns playing in the out bracket down state. The Western region (Sections 5 and 6) and the Long Island region no longer play in the out bracket rounds.

Round 2 – Regional Games

“Regional” games for each class will be played on Saturday, June 1st in what some call the “State Quarter finals”. The Class D “Western Regional Championship” game will be played at 10:00 am, the Class A game at 12:30, the Class B game at 3:00 and the Class C game at 5:30. These games will be played at All High (Section 6) this year.



In other parts of the State, Sections 4/10 winner will play for the “Central Championship” at Section 3 (CNS). Sections 8 and 11 will play for the “Long Island Championship” at Hofstra. Sections 9/2 will play for the “Lower State Championship” at Section 1 (Lakeland HS). (The bracket sheets are in the appendix)..



Round 3 – Semi Final Games

The “East and West” Championships will be played in each class on Wednesday, June 5th. Classes B and A will play at St. John Fisher College and Classes D and C will be played at Albany. Games will be played at 4:00 (B and D) and 6:30 (A and C) These games will crown the “Upstate Champions”.

The “Downstate Championships” will be played at the same times as above at U Albany (B and A) and Adelphi (D and C).

Round 4 – New York State Championships

The Championship games for each Class will be played at St. John Fisher College on Saturday, June 8th. It is expected that the Class C game will start at 10:00 am, the Class D game at 12:30 pm, the Class A game at 3:00 and the Class B game at 5:30 pm.

General Information

Each Sectional Championship team will receive a packet of specific information. What follows is some of the information found in that packet. Winning coaches should carefully review the materials and ask Mike Simon for help as needed.

Admission

An admission is charged for game days. Out bracket and quarter final games prices are set by the Section hosting the games. Admission to the Semifinal and Championship games are set by the NYSPHSAA and will be \$10.00.

Code of Conduct / Medical Release Forms

In the past student athletes and coaches participating in any post-sectional competition signed a "Code of Conduct/ Medical Release" form. This is no longer done as the Athletic Directors sign off (once) on this matter annually.

Supervision

Each participating school must provide school personnel for supervision. Chaperones must identify themselves to the site chairperson and sit or position themselves among their fans. It is the participating schools responsibilities to ensure their students and fans exhibit good behavior.

Signs and Cheering

All signs and cheers must be positive.

Table Personnel

The timekeeper and penalty clock operator shall be adults. Statisticians are not permitted at the table area.



Pre-Game Music

Pre-game music will be allowed at the discretion of the host chairman.

Home Team Color

The home team will wear white (or light colored) uniforms.

Post-Game Procedures

No water, Gator Aid, Ice, etc. shall be dumped on the coaches or players during or after the game. Post game interviews will be held at the end of the field. Coaches should clear the bench area in a timely manner.

Recommendations

Schools should hold to the original size of their teams and avoid the mass promotion of JV players for the tournament. The coaching staff and bench personnel should be limited to normal game day staff. Head Coaches should remind Assistant Coaches that they must be courteous at all times.



Playing Rules

Playing Rules

All games played in the section are governed by the National Federation of State High School Associations (NFHS) 2018 Boys Lacrosse Rules Book. Every coach should have a copy of the rules book and should be familiar with the rules. The book is available for sale but members of the coaches' branch of US Lacrosse receive the book as a benefit. New York State makes changes in these rules from time to time.

The rule book can be purchased from:
<http://www.nfhs.com/c-198-lacrosse-boys.aspx>

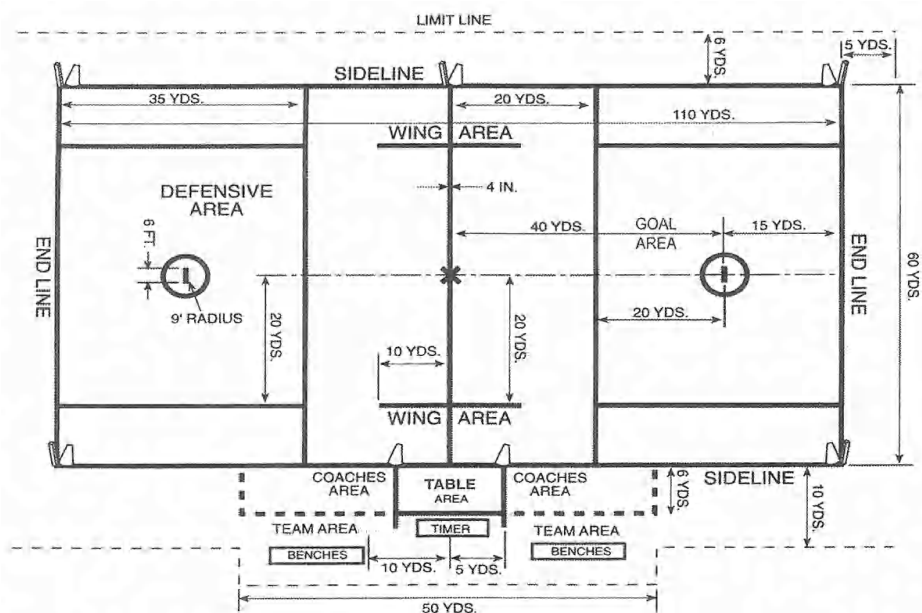


Rules Changes for 2019

A video covering the changes can be accessed from: <https://bit.ly/2tmrzsk>

Additional information is available at US Lacrosse:
<https://www.uslacrosse.org/rules/boys-rules>

The rule changes are found on-line at:
[http://blaxfive.net/features/downloads/2019_A_NFHS_r_Lacrosse_Rules_Changes_2019\(2\).pdf](http://blaxfive.net/features/downloads/2019_A_NFHS_r_Lacrosse_Rules_Changes_2019(2).pdf)



Policies

Sportsmanship

“The Section V Athletic Association is committed to promoting the proper ideals of sportsmanship, ethical conduct and fair play at all sectional activities. We will oppose instances and activities which run counter to the best values of athletic competition in order to insure the well being of all individual players. We will expect acceptable standards of good citizenship and propriety with proper regard for the rights of others.



We are further committed to the belief that schools participating in sectional activities should be held responsible for the conduct of their players, coaches, faculty members, and spectators. Conduct which is detrimental to the educational value of athletic activities may be deemed just cause for the school's reprimand, probation [or] suspension from a particular sport, or suspension from sectional activities.”



Thunder and Lightning Policy

“Thunder and/or Lightning necessitates that all contests be suspended. The occurrence of either thunder and/or lightning is not subject to interpretation or discussion. Thunder is thunder and lightning is lightning. If thunder and/or lightning is observed, all outdoor activities will be suspended immediately. Players and spectators shall be directed to a safe location. The officials and responsible authorities shall make every reasonable effort to resume and complete the contest, with full consideration of the weather and site conditions (as they affect safety and playing conditions). The official/coaches shall wait a minimum of 30 minutes from the time of the interruption before considering the resumption of play.

- A. If thunder and/or lightning is observed at the site of an outdoor contest by the officials, 30 or fewer minutes prior to the scheduled start of that contest, the official/coaches and the responsible school authorities shall not permit the contest to begin on that date until the weather has cleared or the conditions become playable.
- B. If thunder and/or lightning is observed at the site of an outdoor contest by the officials during the playing of the contest, the official / coaches shall immediately cease play for 30 minutes, then re-evaluate the situation. The rules of the particular sport shall determine whether the contest is "official" or must be resumed at a later date."

Revised: 2/13/02
3/11/05

Jewelry Rule

The NYSPHSAA has adopted the following universal jewelry rules to be enforced throughout each sports season including during the state tournament competition:

"JEWELRY RULE: No jewelry, which includes visible body piercing objects, shall be worn in any sport. Any piece of jewelry that is visible at the start of or during a contest is in violation of the NYSPHSAA Jewelry Rule. Religious medals must be taped to the body and under the uniform. Medical medals must be taped to the body so they are visible. Soft, pliable barrettes are permissible, body gems are not. Metal barrettes are permissible in Girls Gymnastics only. NOTE: The sports of Bowling and Golf are exempt from this rule."



In addition, be aware that Lacrosse Rule 1-10-2 (page 16) prohibits jewelry as well. The case book situation 1.10.2 (page 61) indicates that a player found wearing a leather choker should be given a non-releasable foul.

Disqualification of Coach or Athlete

If an athlete, Coach or a support team member of a team is removed from a contest a "Section V Athletic Association Disqualification Form" must be completed by the game official. Each team is required to have a blank copy of the form at each game. The form explains the procedures and timetables required.

After review of the disqualification form, the School Principal, Athletic Director and Superintendent must sign the "Disqualification Response Form" and return it to the Section Five Office.

Copies of both forms can be found in the appendix of this handbook.

Cardiac Automated External Defibrillators

In May 2002 legislation was enacted to add a new section 917 to the Education Law requiring school districts, BOCES, county vocational education and extension boards, and charter schools to provide and maintain on-site, in each instructional school facility, at least one functional automated external defibrillator (AED) for use during emergencies. The legislation also requires public school officials and administrators responsible for such school facilities to ensure the presence of at least one staff person who is trained in the operation and use of an AED.



Legislation: Education Law section 917 becomes effective September 1, 2002. However, in July 2002, the New York State Legislature passed an amendment to that law which allows school districts, BOCES, county vocational and extension boards, and charter schools that are unable to comply with the AED legislation by September 1, 2002 to delay implementation until December 1, 2002. Those wishing to delay implementation should certify to the Commissioner of Education that they are unable to comply by sending a letter to Commissioner Mills.

Requirements: The legislation requires public school officials and administrators responsible for public school facilities to ensure the presence of at least one staff person who is trained in the operation and use of an AED:

- whenever public school facilities are used for school-sponsored or school-approved curricular or extracurricular events or activities, or
- whenever a school-sponsored athletic contest is held at any location.

Where a school-sponsored competitive athletic event is held at a site other than a public school facility, the public school officials must assure that AED equipment is provided on-site.

Heat and Cold Policies

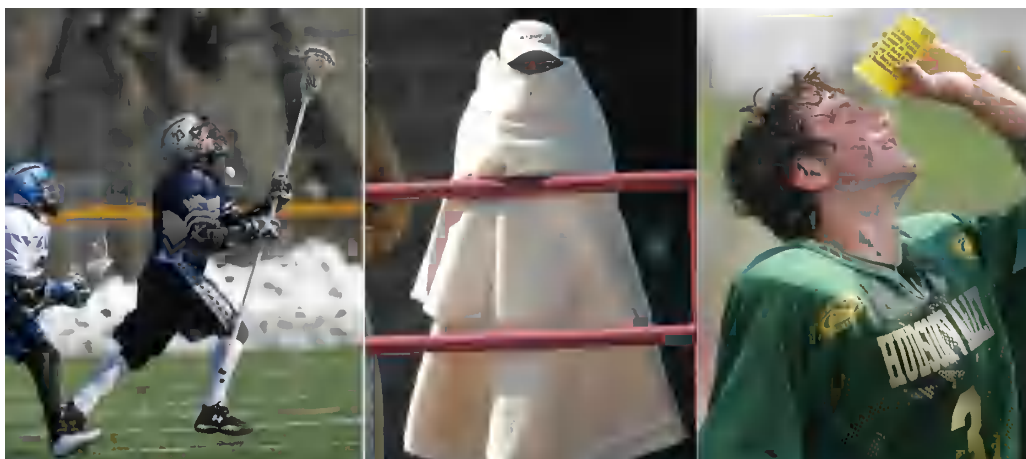
The New York State Public High School Athletic Association adopted new procedures for playing and practicing under extreme heat or cold. The two policies using data from acuweather.com determine if a practice or contest can be conducted and, in certain conditions, special requirements that must be in place when the weather is close to dangerous.

Generally, the procedures require that the heat index (or wind chill index) be checked one hour before practice or games using information from the acuweather.com site. "Realfeel" temperature will be read from the site.

Special conditions are required for temperatures above eighty-degrees or lower than thirty-seven degrees.

Practices and games cannot be played when the "RealFeel" temperature is ninety-six degrees or higher or if the "RealFeel" temperature is eleven degrees or lower.

The policies were adopted on May 1, 2010. The full procedures (Heat Index Procedures and Wind Chill Procedures) are available in the appendix.



This statement is to be read at the beginning of all NYSPHSAA Championship events. Each section and member school could choose to adopt this statement for their contests as well.

"Be Loud, Be Proud, Be Positive New York State Public High School Athletic Association supports and encourages spectators to enjoy the competition of our student athletes and cheer for their teams in a positive manner. Negative comments and behavior will be addressed by the appropriate site personnel. Spectators should Be Loud, Be Proud, and Be Positive toward all players, coaches, officials, and spectators. Thank you for your support and enjoy the game."

2019 Sportsmanship

Emphasis on Sportsmanship This Year

Section Five lacrosse is placing an emphasis on good sportsmanship in 2015. A number of procedures and “ways of doing things” have been implemented. Since everyone involved wants the highest level of sportsmanship, the support of all Section V coaches is expected.

When Visiting Teams Arrive at the Site

Visiting teams should be met by a coach or supervisor as they arrive at the host site. Rest rooms should be available and information about ice and trainers should be offered by the host team. Head Coaches should greet each other as soon as possible.

Start of the game

Before the start of the game one of the officials will go to each bench to review expectations for the game. A suggested game protocol can be found in the appendix.

“One Voice” on the Sideline

Only the Head Coach of the team is to address the officials. Section V lacrosse has asked the GVLOA officials to offer warnings only near the beginning of the season and later to just penalize comments to the officials if made by assistant coaches. Head Coaches are reminded that their behavior and verbal comments to or about the officials are heard by members of their team.

Reporting Unsportsmanlike Conduct Penalties

The GVLOA officials will be reporting the number of unsportsmanlike conduct penalties issued to each team. These reports will be the sum of penalties, not the names of players receiving them. “Conduct” technical penalties will not be reported.

Reporting Ejections

The GVLOA officials will also be using an on-line reporting system to report players who are ejected in games. The normal Section V officials will receive the report as usual, but this year, Head Coaches will also receive a copy of the report.

Head Coach Responsible for Fan Behavior

According to rule, the home team Head Coach is ultimately responsible for the behavior of the fans in the stands. Many schools have site supervisors who help monitor and correct behavioral problems, but all coaches, officials and school personnel are expected to help to react to poor sportsmanship by fans. Good sportsmanship is everyone’s job.

BLaxFive.NET

Section Five Lacrosse on the Web

Section Five lacrosse information can be found at the BLaxfive.NET site.

Schedules, team information, news, weather, travel directions, player statistics and other information of interest is available to the general public.

The news area stores rules and policies as well as game reports and player stories..

Coaches should feel free to send along any news or information that might be of interest on the site.

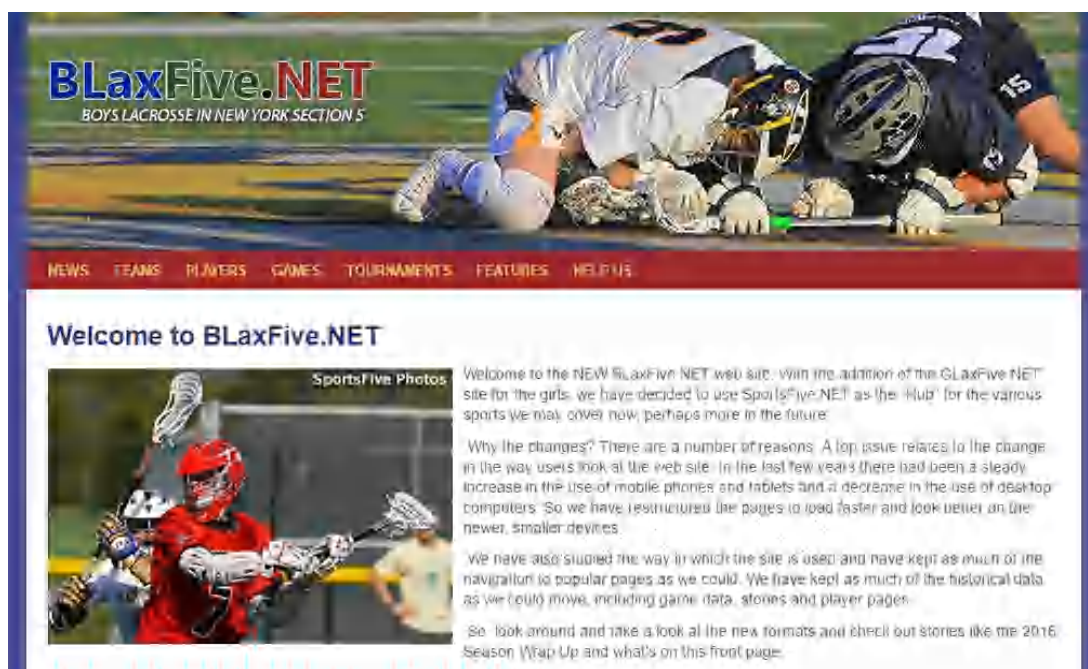
“Coaches Only” Email Newsletter

Head Coaches receive periodic email newsletters from Section Five Lacrosse.

Special “Coaches Only” Features

There are a number of areas on the web site that are available only to Section Five coaches and administrators. The most current contact information for coaches along with other documents for coaches only are uploaded to the “private area”.

Account names and password are available by contacting Paul Wilson.



Sports Reporters

Team Responsibilities

The Head Coach of each team is responsible for reporting scores as soon as possible after each game. With all of the post-game jobs that also need the attention of the Head Coach, it is often advisable to appoint a "Team Sports Reporter". This person can report the team scores and also file other information that is used to produce game reports on BLaxFive.Net.

Reporters need not be members of the coaching staff, but should be an adult rather than a student. A team may appoint more than one reporter if desired.

Other Reporters

A number of "Independent Reporters" are used from time-to-time to gather information that becomes game reports during the season.



The Stats

Section Five Lacrosse is pleased to have some of the best local lacrosse player data in the country and that is due to the efforts of the Coaches and Reporters who faithfully and accurately turn in game stats from each game.

There are two reports now commonly received after a game. The "basic" report includes the score (BY QUARTER), the number of goals and assists scored by each player. The number of saves and goals against for each goalie that played in the game are reported. If more than one goalie plays, the number of minutes each goalie

played is reported as well. **This year we are requesting a "scoring table" from teams that want articles written on BLaxFive.NET.**

SportsFive.NET
Lacrosse in New York Section 5

**Statistics
Clinic**

Statistics Clinic

Kyle Barrett and Paul Wilson will once again offer a clinic to train statisticians and volunteers how to take game statistics. They are willing, throughout the season, to help your team to collect and report on the games.

Post-Season Awards

All Americans / Academic All Americans

US Lacrosse sponsors two programs to honor players at the end of the year. Section V is allowed six "All American" and six "All Academic" awards, based on the number of teams in the section.



Head Coaches nominate players based on criteria from US Lacrosse and at the end of the season the winners are selected.

All Tournament Teams

At the conclusion of each of the three championship

games, an "All Tournament Team" and a Tournament "MVP" will be named. Although players from any team can be named, typically the awards winners come from the finalist teams. The award is based on performances during the tournament and is not based on the player's season or career. The winners usually receive a plaque or certificate.

NYS Scholar / Athlete Awards

At the end of each sport season, the NYSPHSAA honors those teams that excel in the classroom. In order to receive the recognition for the spring season, electronic forms must be filed no later than May 21st.

The directions in the "Programs" area of the NYSPHSAA web site at:

<http://www.nysphsaa.org/Educational-Programs/Scholar-Athletes>



One hundred and sixteen NYS la-

crose teams were named last spring.

In Section V the 2018 list was as follows:

- Aquinas
- Brockport
- Bath
- McQuaid Jesuit
- Mynderse
- Penfield
- Pittsford
- Thomas
- Wayne

The full list can be found on the NYSPHSAA web site at:

<http://www.nysphsaa.org/Portals/0/PDF/Scholar%20Athlete/2017-2018%20SA/Spring%202018%20SA%20TEAMS%20WEBSITE.pdf>



Appendix and Reference Materials

Federation and NYS Documents

- Notes for Timekeepers
- Federation Heat/Cold Policies
- Federation Concussion Rules
- Federation Concussion Facts for Parents
- More on Concussions
- Uniform Specifications and notes
- Scholar/Athlete Information

Rules

- Rule Changes and Points of Emphasis for 2019
- Scrimmage Rules
- Chief Bench Officials Responsibilities

Section V Documents

- Medical Waiver Request to the Representation Rule
- Health Examination reminder

Sportsmanship Handouts

- Section V Lacrosse Mission Statement
- Spectator Courtesy Code of Conduct
- Suggested Pre-Game Order of Events
- Respectful Speech and Behaviors
- Sportsmanship Rubric

New York State Tournament Brackets 2019—TBD

2014 Men's Stop-Time NFHS Timer Guidelines

Game time

- Four 12-minute periods.
- Start/stop timer on the whistle.
- Overtime periods are 4:00.

End of period

- All periods: Notify officials verbally when there are 20 seconds left, then count down loudly from 10, sounding horn at *zero*.
- Fourth period only: notify at 2:10 and 2:00.

Halftime

- 10:00 (or less if both teams are ready)
- Notify officials when 4:20 remains.

Clock malfunctions

- If clock malfunctions during play, count in your head while someone notifies officials.
- Sound double horn at next dead ball.

Signaling of penalties

- Official signals team, number, and foul.
- A "T" formed with the arms indicates a 30-second technical foul.
- Holding 1, 2, or 3 fingers overhead indicates the number of minutes for a personal foul.
- Hands clapped over head: penalty is non-releasable (NR).

Horn

- Double horn at next dead ball: coach request; early penalty release; help needed.
- Never sound horn when ball is in play except at the end of a period.

Timing of penalties

- Write player's team color and number, penalty length, period and time remaining when the penalty reported, game time the player will be released, and an "NR" if applicable.
- If Team A scores a goal, *all* releasable penalties being served by Team B are released.
- If Team A scores a goal, penalties for Team A are not released.
- NR penalties always serve the full penalty

time no matter how many goals are scored.

- If a player has multiple penalties, NR penalty time is always served first, regardless of the order of the fouls.
- Inform officials if period expires with a penalty being served (penalty time carries over).
- Penalized players stay at rear of sub area until 0:05 remains. Then a sub may take the place of the penalized player (who must go to the bench when the penalty expires).
- If a penalty expires during a face-off, do not release the player until possession is called.

Stacking

- If a team has more than 3 penalties at once, they will play with 3 players serving penalties and 7 players on the field.
- Additional players serving penalties will stand outside the sub area by the timer until there is room for them in the penalty area.
- When the first penalty releases, the releasing player exits to the bench and is replaced by one of the waiting players.
- Players with NR penalties serve first.
- A goal by Team A only releases releasable penalties from Team B players actually serving penalties (and not players waiting to serve outside sub area).

Fouling out

- Notify officials if any player accumulates 5 minutes of personal foul penalties (regardless of the number of fouls).
- Notify officials if any player accumulates 2 NR unsportsmanlike conduct penalties.

Mercy Rule

- If a team leads by 12 or more in the 2nd half, the clock does not stop except for time-outs and injuries. The clock does **not** stop on the goal that takes the lead to 12.
- Penalties are running time and are **not** adjusted; time starts running on the whistle.
- If lead drops to 11, revert to stop time.



HEAT INDEX PROCEDURES

Administration of Heat Index Procedures:

- Heat index will be checked 1 hour before the contest/practice by a certified athletic trainer, athletic director, or school designee when the air temperature is 80 degrees (Fahrenheit) or higher.
- The athletic trainer, athletic director, or school designee will use the accuweather.com website to determine the heat index for the area of the contest/practice. The accuweather.com website can be reached through the NYSPHSAA website. Once a person is on the accuweather.com website, they will put in the zip code for the location of the contest/practice and the website will give them the air temperature as well as the RealFeel temperature (heat index).
- If the RealFeel temperature (heat index) is 90 degrees or above, the athletic trainer, athletic director, or school designee must re-check the RealFeel (heat index) at halftime or midway point of the contest. If the RealFeel (heat index) temperature is 96 degrees (Fahrenheit) or more, the contest will be suspended.

Please refer to the following chart to take the appropriate actions:

	RealFeel (Heat Index) under 79 degrees	Full activity. No restrictions
R E C O M M E N D E D	Heat Index Caution: RealFeel (Heat Index) 80 degrees to 85 degrees	Provide ample water and multiple water breaks. Monitor athletes for heat illness. Consider reducing the amount of time for the practice session.
	Heat Index Watch: RealFeel (Heat Index) 86 degrees to 90 degrees	Provide ample water and multiple water breaks. Monitor athletes for heat illness. Consider postponing practice to a time when RealFeel temp is lower. Consider reducing the amount of time for the practice session. 1 hour of recovery time for every hour of practice (ex. 2hr practice = 2hr recovery time).
	Heat Index Warning: RealFeel (Heat Index) 91 degrees to 95 degrees	Provide ample water and water breaks every 15 minutes. Monitor athletes for heat illness. Consider postponing practice to a time when RealFeel temp is much lower. Consider reducing the amount of time for the practice session. 1 hour of recovery time for every hour of practice (ex. 2hr practice = 2hr recovery time). Light weight and loose fitting clothes should be worn. For Practices only Football Helmets should be worn. No other protective equipment should be worn.
REQUIRED	Heat Index Alert: RealFeel (Heat Index) 96 degrees or greater	No outside activity, practice or contest, should be held. Inside activity should only be held if air conditioned.



WIND CHILL PROCEDURES

Administration of Wind Chill Procedures:

- Wind Chill will be checked 1 hour before the contest/practice by a certified athletic trainer, athletic director, or school designee when the air temperature is 39 degrees (Fahrenheit) or lower.
- The athletic trainer, athletic director, or school designee will use the accuweather.com website to determine the heat index for the area of the contest/practice. The accuweather.com website can be reached through the NYSPHSAA website. Once a person is on the accuweather.com website, they will put in the zip code for the location of the contest/practice and the website will give them the air temperature as well as the RealFeel temperature (wind chill).
- If the RealFeel temperature (wind chill) is 10 degrees or below, the athletic trainer, athletic director, or school designee must re-check the RealFeel (wind chill) at halftime or midway point of the contest. If the RealFeel (wind chill) temperature is -11 degrees (Fahrenheit) or lower, the contest will be suspended.

Please refer to the following chart to take the appropriate actions:

	RealFeel (wind chill) above 40 degrees	Full activity. No restrictions
R E C O M M E N D E D	Wind Chill Caution: RealFeel (wind chill) 36 degrees to 20 degrees	Stay adequately hydrated. Notify coaches of the threat of cold related illnesses. Have students and coaches dress in layers of clothing.
	Wind Chill Watch: RealFeel (wind chill) 29 degrees to 10 degrees	Stay adequately hydrated. Notify coaches of the threat of cold related illnesses. Have students and coaches dress in layers of clothing. Cover the head and neck to prevent heat loss.
	Wind Chill Warning: RealFeel (wind chill) 9 degrees to -10 degrees	Stay adequately hydrated. Notify coaches of the threat of cold related illnesses. Have students and coaches dress in layers of clothing. Cover the head and neck to prevent heat loss. Consider postponing practice to a time when ReelFeel temp is much higher. Consider reducing the amount of time for an outdoor practice session.
REQUIRED	Wind Chill Alert: RealFeel (wind chill) -11 degrees or lower	No outside activity, practice or contest, should be held.

Special Note: Alpine Skiing will be exempt from this policy and will follow the regulations of the host ski center where the practice or event is being held.

Approved May 1, 2010



To: NYSPHSAA Member Schools
Sport Official Organizations
From: New York State Public High School Athletic Association
Date: August 19, 2010
Re: NFHS Concussion Rule

Revised 8/19/10

This memo is to serve as a clarification of the NFHS Concussion Rule, effective for the 2010-2011 school year, for the sports that use the NFHS rules.

The NFHS Concussion Rule states, *“Any athlete who exhibits signs, symptoms or behaviors consistent with a concussion (such as loss of consciousness, headaches, dizziness, confusion or balance problems) shall be immediately removed from the contest and shall not return to play until cleared by an appropriate health-care professional”*. The NFHS emphasizes in the concussion rule that coaches and officials are NOT expected to “diagnose” a concussion. This is the responsibility of the appropriate health-care professional.

The responsibility for observing signs, symptoms, and behaviors that are consistent with a concussion is shared by both sport officials and school officials. The following protocol should be followed if any signs, symptoms or behaviors are observed.

Sport official: Remove the athlete from the contest. The official is NOT responsible for the sideline evaluation or the management of the athlete once they have been removed from the game. The official does not have to receive any paper work clearing the player to return to the game.

School official: The athlete needs to be *assessed by an appropriate health care professional. School health personnel are considered appropriate health care professionals. School health personnel include the Chief School Medical Officer, school nurse, physician, certified athletic trainer or an EMT that is a member of the on-site EMS squad. If the appropriate health care professional suspects a concussion, the student athlete MAY NOT return to the contest. The athlete MAY NOT return if an appropriate health care professional is not available. The NFHS and NYSPHSAA recommend that any athlete that suffers a concussion should not return to play the day of the injury. A student athlete that has been diagnosed with a concussion MUST be cleared by the Chief School Medical Officer.*

The NFHS and NYSPHSAA have developed many resources to help school officials, sport officials, parents, and students learn more about concussion management. A concussion DVD, sideline cards, and other useful materials can be found on the NYSPHSAA website (www.nysphsaa.org). A cost free concussion management course can be found on the NFHS website (www.nfhslearn.com).

We have included a list of possible signs, symptoms, and behaviors that can be observed by sport officials and school officials. We have also included for school officials a recommended return to play protocol. We encourage anyone that has questions or concerns to contact the NYSPHSAA office or the Section Concussion Management Team.

SIGNS, SYMPTOMS, AND BEHAVIORS OF A POSSIBLE HEAD TRAUMA

1. Problems in Brain Function

- a. **Confused state** – Dazed look, vacant stare, confusion about what happened or is happening.
- b. **Memory problems** – Can't remember assignment on play, opponent, score of game, or period of the game. Can't remember how or with whom he or she traveled to the game, what he or she is wearing, what was eaten for breakfast etc.
- c. **Symptoms reported by athlete** – Headache, nausea, or vomiting, blurred or double vision, oversensitivity to sound, light or touch, ringing in the ears, feeling foggy or groggy.
- d. **Lack of sustained attention** – Difficulty sustaining focus adequately to complete a task or a coherent thought or conversation.

2. Speed of Brain Function: Slow response to questions, slow slurred speech, incoherent speech, slow body movements, slow reaction time.

3. Unusual Behaviors: Behaving in a combative, aggressive or very silly manner, or just atypical for the individual. Repeatedly asking the same question over and over. Restless and irritable behavior with constant motion and attempts to return to play or leave. Reactions that seem out of proportion and inappropriate. Changing position frequently and having trouble resting or finding a comfortable position. These can be manifestations of post-head trauma difficulties.

4. Problems with Balance and Coordination: Dizzy, slow, clumsy movements, inability to walk a straight line or balance on one foot with eyes closed.

Recommended Return to Play Protocol

Day 1: No exertional activity until medically cleared and asymptomatic for 24 hours.

Day 2: Begin low-impact activity such as walking, stationary bike, etc.

Day 3: Initiate aerobic activity fundamental to specific sport such as skating, running, etc.

Day 4: Begin non-contact skill drills specific to sport such as dribbling, ground balls, batting, etc.

Day 5: Full contact in practice setting

If the athlete remains without symptoms, he or she may return to play.

Special note: Athlete must remain asymptomatic to progress to next day.
If symptoms return, the athlete must return to the previous level.
Medical check should occur before contact.



A Parent's Guide to Concussion in Sports

What is a concussion?

- A concussion is a brain injury which results in a temporary disruption of normal brain function. A concussion occurs when the brain is violently rocked back and forth or twisted inside the skull as a result of a blow to the head or body. An athlete does not have to lose consciousness (“knocked-out”) to suffer a concussion.

Concussion Facts

- It is estimated that over 140,000 high school athletes across the United States suffer a concussion each year. (Data from NFHS Injury Surveillance System)
- Concussions occur most frequently in football, but girl's lacrosse, girl's soccer, boy's lacrosse, wrestling and girl's basketball follow closely behind. All athletes are at risk.
- A concussion is a traumatic injury to the brain.
- Concussion symptoms may last from a few days to several months.
- Concussions can cause symptoms which interfere with school, work, and social life.
- An athlete should not return to sports while still having symptoms from a concussion as they are at risk for prolonging symptoms and further injury.
- A concussion may cause multiple symptoms. Many symptoms appear immediately after the injury, while others may develop over the next several days or weeks. The symptoms may be subtle and are often difficult to fully recognize.

What are the signs and symptoms of a concussion?

SIGNS OBSERVED BY PARENTS, FRIENDS, TEACHERS OR COACHES

Appears dazed or stunned

Is confused about what to do

Forgets plays

Is unsure of game, score, or opponent

Moves clumsily

Answers questions slowly

Loses consciousness

Shows behavior or personality changes

Can't recall events prior to hit

Can't recall events after hit

SYMPTOMS REPORTED BY ATHLETE

Headache

Nausea

Balance problems or dizziness

Double or fuzzy vision

Sensitivity to light or noise

Feeling sluggish

Feeling foggy or groggy

Concentration or memory problems

Confusion

What should I do if I think my child has had a concussion?

If an athlete is suspected of having a concussion, he or she must be immediately removed from play, be it a game or practice. Continuing to participate in physical activity after a concussion can lead to worsening concussion symptoms, increased risk for further injury, and even death. Parents and coaches are not expected to be able to “diagnose” a concussion, as that is the job of a medical professional. However, you must be aware of the signs and symptoms of a concussion and if you are suspicious, then your child must stop playing:

When in doubt, sit them out!

All athletes who sustain a concussion need to be evaluated by a health care professional who is familiar with sports concussions. You should call your child's physician and explain what has happened and follow your physician's instructions. If your child is vomiting, has a severe headache, is having difficulty staying awake or answering simple questions he or she should be taken to the emergency department immediately.

When can an athlete return to play following a concussion?

After suffering a concussion, **no athlete should return to play or practice on that same day.** Previously, athletes were allowed to return to play if their symptoms resolved within 15 minutes of the injury. Studies have shown us that the young brain does not recover quickly enough for an athlete to return to activity in such a short time.

Concerns over athletes returning to play too quickly have led state lawmakers in both Oregon and Washington to pass laws stating that **no player shall return to play following a concussion on that same day and the athlete must be cleared by an appropriate health-care professional before he or she are allowed to return to play in games or practices.** The laws also mandate that coaches receive education on recognizing the signs and symptoms of concussion.

Once an athlete no longer has symptoms of a concussion and is cleared to return to play by health care professional knowledgeable in the care of sports concussions he or she should proceed with activity in a step-wise fashion to allow the brain to re-adjust to exertion. On average the athlete will complete a new step each day. The return to play schedule should proceed as below following medical clearance:

Step 1: Light exercise, including walking or riding an exercise bike. No weight-lifting.

Step 2: Running in the gym or on the field. No helmet or other equipment.

Step 3: Non-contact training drills in full equipment. Weight-training can begin.

Step 4: Full contact practice or training.

Step 5: Game play.

If symptoms occur at any step, the athlete should cease activity and be re-evaluated by their health care provider.

How can a concussion affect schoolwork?

Following a concussion, many athletes will have difficulty in school. These problems may last from days to months and often involve difficulties with short and long-term memory, concentration, and organization.

In many cases it is best to lessen the athlete's class load early on after the injury. This may include staying home from school for a few days, followed by a lightened schedule for a few days, or perhaps a longer period of time, if needed. Decreasing the stress on the brain early on after a concussion may lessen symptoms and shorten the recovery time.

What can I do?

- Both you and your child should learn to recognize the “Signs and Symptoms” of concussion as listed above.
- Teach your child to tell the coaching staff if he or she experiences such symptoms.
- Emphasize to administrators, coaches, teachers, and other parents your concerns and expectations about concussion and safe play.
- Teach your child to tell the coaching staff if he or she suspects that a teammate has a concussion.
- Monitor sports equipment for safety, fit, and maintenance.
- Ask teachers to monitor any decrease in grades or changes in behavior that could indicate concussion.
- Report concussions that occurred during the school year to appropriate school staff. This will help in monitoring injured athletes as they move to the next season’s sports.

Other Frequently Asked Questions

Why is it so important that an athlete not return to play until they have completely recovered from a concussion?

Athletes who are not fully recovered from an initial concussion are significantly vulnerable for recurrent, cumulative, and even catastrophic consequences of a second concussive injury. Such difficulties are prevented if the athlete is allowed time to recover from the concussion and return to play decisions are carefully made. No athlete should return-to-sport or other at-risk participation when symptoms of concussion are present and recovery is ongoing.

Is a “CAT scan” or MRI needed to diagnose a concussion?

Diagnostic testing, which includes CT (“CAT”) and MRI scans, are rarely needed following a concussion. While these are helpful in identifying life-threatening brain injuries (e.g. skull fracture, bleeding, swelling), they are not normally utilized, even by athletes who have sustained severe concussions. A concussion is diagnosed based upon the athlete’s story of the injury and the health care provider’s physical examination.

What is the best treatment to help my child recover more quickly from a concussion?

The best treatment for a concussion is rest. There are no medications that can speed the recovery from a concussion. Exposure to loud noises, bright lights, computers, video games, television and phones (including text messaging) all may worsen the symptoms of a concussion. You should allow your child to rest as much as possible in the days following a concussion. As the symptoms

lessen, you can allow increased use of computers, phone, video games, etc., but the access must be lessened if symptoms worsen.

How long do the symptoms of a concussion usually last?

The symptoms of a concussion will usually go away within one week of the initial injury. You should anticipate that your child will likely be out of sports for about two weeks following a concussion. However, in some cases symptoms may last for several weeks, or even months. Symptoms such as headache, memory problems, poor concentration, and mood changes can interfere with school, work, and social interactions. The potential for such long-term symptoms indicates the need for careful management of all concussions.

How many concussions can an athlete have before he or she should stop playing sports?

There is no “magic number” of concussions that determine when an athlete should give up playing contact or collision sports. The circumstances surrounding each individual injury, such as how the injury happened and length of symptoms following the concussion, are very important and must be considered when assessing an athlete’s risk for further and potentially more serious concussions. The decision to “retire” from sports is a decision best reached following a complete evaluation by your child’s primary care provider and consultation with a physician or neuropsychologist who specializes in treating sports concussion.

I’ve read recently that concussions may cause long-term brain damage in professional football players. Is this a risk for high school athletes who have had a concussion?

The issue of “chronic encephalopathy” in several former NFL players has received a great deal of media attention lately. Very little is known about what may be causing dramatic abnormalities in the brains of these unfortunate retired football players. At this time we have very little knowledge of the long-term effects of concussions which happen during high school athletics.

In the cases of the retired NFL players, it appears that most had long careers in the NFL after playing in high school and college. In most cases, they played football for over 20 years and suffered multiple concussions in addition to hundreds of other blows to their heads. Alcohol and steroid use may also be contributing factors in some cases. Obviously, the average high school athlete does not come close to suffering the total number or shear force of head trauma seen by professional football players. However, the fact that we know very little about the long-term effects of concussions in young athletes is further reason to very carefully manage each concussion.

Some of this information has been adapted from the CDC's "Heads Up: Concussion in High School Sports" materials by the NFHS's Sports Medicine Advisory Committee. Please go to www.cdc.gov/ncipc/tbi/Coaches_Tool_Kit.htm for more information.

If you have any further questions regarding concussions in high school athletes or want to know how to find a concussion specialist in your area please contact Michael C. Koester, MD, ATC and Chair of the NFHS Sports Medicine Advisory Committee at michael.koester@slocumcenter.com.

April 2010

What factors must be considered in 'return to school' following concussion and what strategies or accommodations should be followed?

A systematic review

Laura K Purcell,¹ Gavin A Davis,² Gerard A Gioia³

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/bjsports-2017-097853>).

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This study was presented in part at the 5th International Consensus Conference on Concussion in Sport in Berlin 2016, and some of these results were published with the conference proceedings.

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ABSTRACT

Objective To evaluate the evidence regarding (1) factors affecting return to school (RTS) and (2) strategies/accommodations for RTS following a sport-related concussion (SRC) in children and adolescents.

Design A systematic review of original studies specifically addressing RTS following concussion in the paediatric and sporting context.

Data sources MEDLINE (Ovid), Embase (Ovid), PsycInfo (Ovid) electronic databases and the grey literature OpenGrey, ClinicalTrials.gov and Google Advanced.

Eligibility criteria Studies were included if they were original research on RTS following SRC in children aged 5–18 years published in English between 1985 and 2017.

Results A total of 180 articles were identified; 17 articles met inclusion criteria. Several factors should be considered for RTS after concussion, including: symptomatology; rest following injury; age/grade; and course load. On RTS after concussion, 17%–73% of students were provided academic accommodations or experienced difficulty with RTS. Students were more likely to obtain academic accommodations in schools with a concussion policy if they had a medical RTS letter and had regular medical follow-up after concussion.

Conclusions Schools should have a concussion policy and offer individualised academic accommodations to students recovering from SRC on RTS; a medical letter should be provided to facilitate provision/receipt of academic accommodations; students should have early, regular medical follow-up following SRC to help with RTS and monitor recovery; students may require temporary absence from school after SRC; clinicians should assess risk factors/modifiers that may prolong recovery and require more intensive academic accommodations.

PROSPERO registration number CRD42016039184.

INTRODUCTION

Concussions are common in sports, particularly in children and adolescents, with about 70% of sport-related head injuries occurring in persons under 18 years of age.¹ About 100 000–175 000 children present annually to US emergency departments (ED) with sport-related concussion (SRC), which accounts for 25%–50% of paediatric concussions.^{2–5} Concussions represent 9%–12% of sport injuries in high school athletics.^{6,7}

Children face different issues than adults after SRC, with RTS being a key aspect of management. For children and adolescents who recover quickly from SRC, school return may require minimal

support. However, postconcussion cognitive symptoms such as impaired memory, attention and concentration, and somatic symptoms such as headaches, dizziness and fatigue may negatively impact students' ability to RTS.^{8–10} Students with more numerous/severe symptoms may have symptom exacerbation with RTS.¹¹

Several consensus/position statements and guidelines have addressed RTS after concussion.^{12–16} Following the Fourth International Consensus Conference on Concussion in Sport, the Child-SCAT3 assessment tool was developed for children aged 5–12 years, with a child-specific symptom scale and recommendations for RTS. The Concussion in Sport Consensus Statement also addressed children's cognitive requirements and need for school accommodations.¹⁷ However, these resources have been based on limited empirical research. Many areas of RTS lack evidence-based guidelines.

Therefore, this systematic review addressed two questions:

1. What factors must be considered in 'return to school' following concussion?
2. What strategies or accommodations should be recommended in 'return to school' following concussion?

METHODS

This systematic review was conducted as part of a larger review on differences in concussion management between children and adults, which was presented at the Fifth International Consensus Conference on Concussion in Sport.^{18–20} However, it represents a more detailed analysis of RTS in children and adolescents following SRC.

This systematic review was prospectively registered in the PROSPERO database (registration number CRD42016039184).

Literature identification

The search strategy (box 1) was developed in collaboration with a specialist librarian. Electronic databases searched were Ovid MEDLINE, Ovid Embase and Ovid PsycInfo, in addition to reviewing reference lists of retrieved articles and published articles by the authors to identify any potentially eligible articles not identified by the electronic database search. Three grey literature repositories (OpenGrey, ClinicalTrials.gov and Google Advanced) were searched. The searches addressing both



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Box 1 Search strategy

Ovid MEDLINE:

1. exp Brain Concussion/
2. concuss\$.tw.
3. ((mild or minor or minimal) adj (traumatic brain or tbi)).tw.
4. mtbi.tw
5. exp Brain Injury/
6. (((severe or moderate) adj2 (head or brain or traumatic or tbi)) not (mild or minor)).ti.
7. 5 not 6
8. or/1–4,7
9. 8 and (child* or adolescen*).mp.
10. 9 not (animal/not human/)
11. limit 10 to English
12. limit 11 to yr="1985-Current"
13. (return* adj3 (school or learn*)).mp.
14. 12 and 13

Ovid Embase:

1. Brain Concussion/or Concussion/
2. concuss\$.tw.
3. ((mild or minor or minimal) adj (traumatic brain or tbi)).tw.
4. mtbi.tw
5. exp Brain Injury/
6. (((severe or moderate) adj2 (head or brain or traumatic or tbi)) not (mild or minor)).ti.
7. 5 not 6
8. or/1–4,7
9. 8 and (child* or adolescen*).mp.
10. 9 NOT ((exp animal/or nonhuman/NOT exp human)
11. limit 10 to English
12. limit 11 to yr="1985-Current"
13. (return* adj3 (school or learn*)).mp.
14. 12 and 13

Ovid PsycInfo:

1. exp Brain Concussion/
2. concuss\$.tw.
3. ((mild or minor or minimal) adj (traumatic brain or tbi)).tw.
4. mtbi.tw
5. exp Head Injuries/OR exp Traumatic Brain Injury/
6. (((severe or moderate) adj2 (head or brain or traumatic or tbi)) not (mild or minor)).ti.
7. 5 not 6
8. or/1–4,7
9. limit 8 to (childhood or adolescence <13 to 17 years>)
10. (minors or minors* or boy or boys or boyfriend or boyhood or girl* or kid or kids or child or child* or children* or schoolchild* or schoolchild).mp. or school child.ti,ab. or school child*.ti,ab. or (adolescen* or juvenil* or youth* or teen* or under*age* or pubescen*).mp. or exp pediatrics/ (pediatric* or paediatric* or peadiatric*).mp. or school.ti,ab. or school*.ti,ab.
11. 8 and 10
12. 9 or 11
13. limit 12 to English
14. limit 13 to yr="1985-Current"
15. (return* adj3 (school or learn*)).mp.
16. 14 and 15

questions (factors and accommodations) were run concurrently; however, the results were analysed separately.

Article selection

Inclusion criteria were:

- ▶ original research on RTS following SRC
- ▶ in children aged 5 years to less than 18 years
- ▶ published in English
- ▶ between 1985 and May 2016 (results presented at the Berlin meeting).

The search was repeated for this updated review to include studies published between the initial search and June 2017.

Exclusion criteria were:

- ▶ studies of moderate/severe traumatic brain injuries
- ▶ patients with no clear history of head trauma or SRC
- ▶ patients who sustained non-accidental injury
- ▶ preschool-age children.

Studies evaluating patients with mixed mechanisms of injury were included if SRC was part of the study population. As well, studies with mixed age cohorts were included if there were sufficient numbers of children/adolescents less than 18 years of age. In addition, studies examining cognitive activity/rest or cognitive impairment following SRC were included as a proxy for school effects following concussion.

All titles and abstracts identified by the search were reviewed independently by two of the authors (LKP and GAD) and the full texts of all potentially eligible articles were obtained and reviewed. The final selection of articles was determined by consensus among the authors.

Data extraction

The following data from the included studies were inputted into a data extraction table independently by LKP and GAD: study design; participant characteristics; exposure/intervention; outcome; results; limitations.

Risk of bias assessment

Two authors (LKP and GAD) independently assessed the quality of each study using the Downs and Black (DB) checklist.²¹ This tool can be used for randomised and non-randomised study designs. Discrepancies in DB scoring were resolved by consensus. The level of evidence for each study was assessed independently by each of the authors using The Oxford 2011 Levels of Evidence.²² All authors agreed on the assessed levels of evidence.

RESULTS

Seventeen studies were included (figure 1).^{23–39} The initial search generated 167 potentially eligible articles of which 11 met inclusion criteria.^{25–27 29 30 34–37} Two additional studies were independently identified by one of the authors (GAG).^{38 39} The updated search identified 10 additional potential articles, of which three^{28 32 33} met inclusion criteria, and an additional article was identified by one of the authors (GAG).³¹ Many of the included studies evaluated mixed cohorts of children, adolescents and adults, as well as varied mechanisms of injury not related to sport. Frequent areas of limitations for the included studies included: lack of reported adverse events; external validity for most studies as the populations studied were recruited from urban EDs or specialty concussion clinics; lack of blinding and randomisation. In addition, the overall level of evidence was low (3 or 4); there were only two randomised controlled trials (RCT) identified.^{36 38}

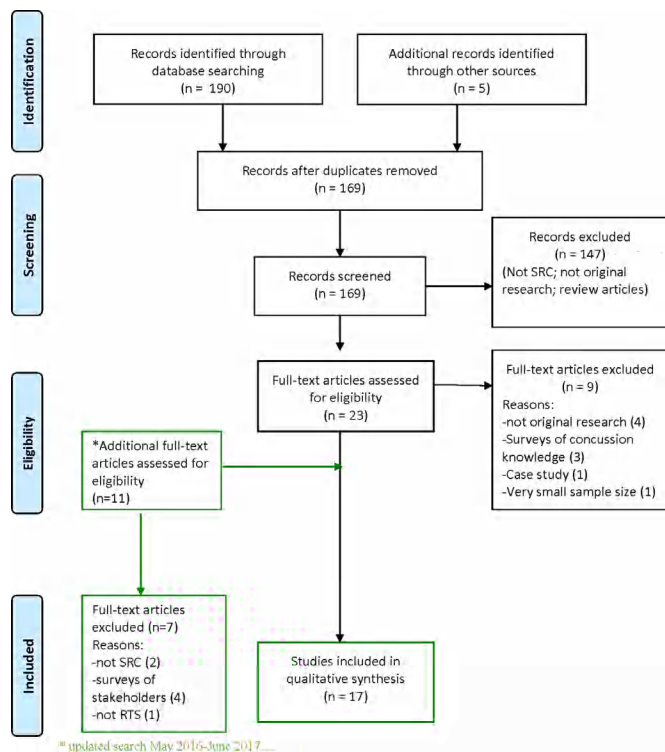


Figure 1 Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram. RTS, return to school; SRC, sport-related concussion.

Factors to be considered on RTS following concussion

Eleven articles examined factors to be considered after concussion on RTS (table 1).^{23–33} These factors include:

1. Symptom load/severity: Higher symptom loads and more severe symptoms were associated with a greater likelihood of missing more days of school and having difficulties on RTS, in addition to longer recovery.^{23 25 29–31}
2. Types of symptoms: Symptoms such as headache, visual disturbances, memory deficits, difficulty concentrating, executive dysfunction and vestibular abnormalities may adversely affect a student's ability to attend school after a concussion.^{23 25–27 29 31}
3. Duration of symptoms: Patients with longer duration of symptoms had more difficulty with RTS^{23 30}; high cognitive loads after injury were associated with persistent symptoms.²⁴
4. Age/grade or school level: Adolescents/high school students tended to have more postconcussion symptoms, greater severity of symptoms, and took longer to recover, to RTS and to return to play (RTP) than younger children.^{25 29–31} In addition, adolescents were more concerned about negative academic effects of concussion than younger children.³⁰
5. Course load: Certain subjects such as math pose greater problems for students on RTS after a concussion, followed by reading/language, arts, science and social studies.³⁰
6. Rest following injury: Patients who did not initially rest following injury took longer to RTS than those who rested immediately following injury³²; high cognitive loads/increased school attendance exacerbated symptoms.^{24 28}

Socioeconomic status (SES) may also affect concussion recovery. A US pilot study examining SES and effect on concussion recovery found that patients with private insurance missed more days of school following concussion than patients with public insurance (mean of 5.2 days±10.6 vs 2.0 days±2.1).³³

Additional factors to be considered include school concussion policies/resources, medical guidance to schools following concussion diagnosis and medical follow-up after concussion.^{36 37 39}

Strategies or accommodations for RTS

Six articles examined strategies or provision/receipt of accommodations for RTS (table 2).^{34–39} Other than temporary school absence, the types of academic accommodations provided were not specified. Most students were able to RTS after 2–5 days,^{29 37 38} although up to 45% of students may experience exacerbation/recurrence of symptoms on RTS.³⁴ On RTS after concussion, 17%–73% of students were provided academic accommodations and/or experienced school difficulty.^{23 25 26 29 35 37 39} An RCT found that academic accommodations were more likely to be initiated for students recovering from concussion in schools with concussion policies.³⁶ Concussed students who received outpatient medical follow-up, parental education and a medical RTS letter after initial assessment in an ED were also more likely to receive academic accommodations on RTS.^{37 39} Some academic subjects, such as mathematics and reading/language, may pose greater problems for students on RTS following a concussion, suggesting that these subjects might require more intervention.³⁰

DISCUSSION

Factors to be considered on RTS following concussion

Although historically concussion management has focused on return to sport, RTS is more important in children and adolescents, since school is their primary 'work'.⁴⁰ Four factors should be considered on RTS after concussion^{23–33 36 37 39}:

1. symptomatology
2. age/school level
3. course load
4. rest following injury.

Students with more symptoms, greater symptom severity, more persistent symptoms and particular symptoms such as difficulty concentrating, executive dysfunction, visual deficits and vestibular abnormalities took longer to recover and had more difficulty with RTS.^{23 25 26 29–31 35} Visual abnormalities and vestibulo-ocular abnormalities are particularly common after concussion and in patients with persistent symptoms.^{41–45}

Adolescents/high school students tended to have more symptoms, more severe symptoms and more difficulty with RTS than younger students, and took longer to recover.^{29 30 34 39} Age 13 years old and greater was a predictor of persistent concussion symptoms in a recent prospective, multicentre ED cohort study.⁴⁶ The reasons for age and school level differences are unclear but may reflect the nature of injury manifestation in adolescents; increased academic and social demands; greater challenges to implement consistent, coordinated management strategies across multiple classes/teachers; and greater independence and decreased supervision in compliance with medical recommendations. These studies, however, sampled children and adolescents from specialty clinics, which may represent an overall higher symptom burden and severity, and therefore may limit the generalisation of their findings.

Lack of rest, both cognitive and physical, immediately following concussion has also been associated with persistent symptoms. Higher cognitive activity, such as school attendance, may cause exacerbation of symptoms and prolonged recovery from concussion, as well as longer RTS.^{11 24 28 32} Student-athletes who continued to play after injury took twice as long to recover and were almost nine times as likely to have prolonged recovery

Table 1 Articles examining factors to be considered on return to school following a concussion

Article	Study design, duration, country	Participants (n, age, sex)	Exposure/intervention (Definition)	Outcome (Definition)	Results (including statistical outcomes)	Main limitations	Study quality assessment (DB score)	Level of evidence
Baker <i>et al</i> ²³	Retrospective, descriptive study (telephone interview of cohort) 2010–2012 USA	Student athletes (n=91), aged 13–19 years	SRC observed by athletic trainer and assessed by sports medicine physician/telephone follow-up/SCAT2, BCTT and ANAM or ImpACT	Factors associated with school difficulties following concussion and school days missed	<ul style="list-style-type: none"> Problems with RTS=35/91 (38.5%) Age, gender, previous concussions not associated with school problems Days to recover: >10=57%, >21=29% Recovery <10 days=less likely to report school problems (P<0.01) Students who reported school problems: (A) longer to become asymptomatic (P<0.005) or pass BCTT (P<0.03), (B) more symptoms (P<0.021), (C) higher severity scores (P<0.023), (D) blurred vision (2.5 times), (E) difficulty remembering (1.8 times), (F) ANAM/ImpACT BS=49% vs no BS=26% (P<0.03) Missed days of school: higher symptom severity scores (P<0.032) 	<ul style="list-style-type: none"> Significant delay for phone follow-up (mean of 14.4±9.6 months); recall bias Two different CNTs used 31/91 (34%) of patients asymptomatic at time of first clinic appointment 	17	4
Brown <i>et al</i> ²⁴	Single-centre, prospective cohort October 2009 to July 2011 USA	n=335 Mean age 15 (8–23) years 62% male	Patients seen at a sports concussion clinic ≤3 weeks after concussion. PCSS and cognitive activity scale	Effect of cognitive load on duration of PCS	<ul style="list-style-type: none"> Mean PCSS score at initial visit was 30 Mean duration of symptoms 43 days; no difference between age groups Total symptom burden at initial visit and cognitive activity independently associated with duration of symptoms Highest cognitive activity associated with prolonged symptom duration; no difference between mild/moderate cognitive activity and cognitive rest 	<ul style="list-style-type: none"> Included non-SRC Cognitive activity scale not validated Included adults Specialty sport medicine clinic No direct evaluation of RTS 	18	3
Conwin <i>et al</i> ²⁵	Retrospective EMR review July 2010 to December 2011 USA	n=247 (Note: same data set as ref. ³⁰) Aged 7–18 years 58% male	Patients with concussion seen at a tertiary paediatric hospital-affiliated Sports Medicine Clinic Vestibular deficit=abnormalities on VOR and/or tandem gait	Prevalence and recovery of patients with concussion and vestibular deficits, and correlate with ImpACT results	<ul style="list-style-type: none"> 81% had vestibular abnormality on initial exam; took significantly longer to RTS (59 vs 6 days, P=0.001) and be fully cleared (106 vs 29 days, P=0.001); scored more poorly on ImpACT and took longer to recover from deficits History ≥3 concussions had 100% prevalence of vestibular deficits and took longer to resolve 	<ul style="list-style-type: none"> Relatively small sample size External validity: referral of more severe concussions Delayed presentation Retrospective review 23% non-SRC 	18	4

Continued

Table 1 Continued

Article	Study design, duration, country	Participants (n, age, sex)	Exposure/intervention (Definition)	Outcome (Definition)	Results (including statistical outcomes)	Main limitations	Study quality assessment (DB score)	Level of evidence
Darling <i>et al</i> ²⁶	Retrospective chart review and telephone follow-up 2010–2012 USA	Athletes (n=117) Aged 13–19 years (75% male) for chart review Patients and parents (n=91) (77.8%) for telephone follow-up 76.9% male	<ul style="list-style-type: none"> Patients with SRC seen at a university sports medicine clinic Once asymptomatic (SCAT2), then CNT (ANAM or ImPACT), then BCTT, then Zurich Guidelines for RTP 	Evaluate success of RTP and RTL	<ul style="list-style-type: none"> All athletes RTP without exacerbation of symptoms Telephone follow-up indicated that 42.9% had difficulty readjusting to the classroom following concussion, with 38.5% reporting new or increased issues on RTL Most common complaint was difficulty concentrating 48% had one or more CNTs below average when asymptomatic Performance on CNT was not predictive of RTL issues 	<ul style="list-style-type: none"> 2 different CNTs Last CNT prior to RTP used on average 3 weeks after injury—school problems could have already resolved Heterogeneous time of initial evaluation (some day of injury, some not for weeks after injury) University sports medicine clinic 2-month period following RTP for phone follow-up: recall bias Did not describe issues encountered on RTL or length of issues No baseline data 	17	4
Lovell <i>et al</i> ²⁷	Case-control Baseline data collected prior to 2000 and 2001 seasons USA	Concussed high school athletes (n=64) 94% male 24 controls (67% male)	ImPACT before and after SRC (36 hours, days 4, 7) compared with non-injured controls	Evaluate memory dysfunction and self-reporting of symptoms in high school athletes with concussion	<ul style="list-style-type: none"> Significant decline in memory in concussed athletes compared with controls Significant differences between preseason and postinjury memory test results at day 4 and day 7 after injury Self-reported symptoms resolved by day 4 Duration of on-field mental status changes was related to memory impairment at 36 hours, days 4 and 7 after injury; also related to slower resolution of self-reported symptoms 	<ul style="list-style-type: none"> Study and control groups not equivalent in number, gender or sport Excluded those with LOC Small sample size Very short study duration (up to 7 days after injury) Ages of athletes not specified No direct evaluation of RTS or academic needs 	15	4

Continued

Table 1 Continued

Article	Study design, duration, country	Participants (n, age, sex)	Exposure/intervention (Definition)	Outcome (Definition)	Results (including statistical outcomes)	Main limitations	Study quality assessment (DB score)	Level of evidence
Makki <i>et al</i> ²⁸	Prospective cohort study Dates not specified USA	n=42 Aged 14–19 years 88% male	Student-athletes with SRC attending concussion clinic within 10 days of injury Daily reports on symptoms (PCSS) and hours of school attendance for 14 days after first clinic attendance	Prospective evaluation of relationship of school attendance and symptoms after SRC	<ul style="list-style-type: none"> ▲ Mean age 15.4±1.3 years ▲ Mean symptom severity score on first clinic day 32.7±23.3 ▲ Symptom severity scores decreased with time ($\beta=-2.12$, $P<0.001$) ▲ Symptom severity score increased with hours of school ($\beta=0.32$, $P<0.0137$) with no significant effect of days from injury ($\beta=-2.12$, $P=0.50$) ▲ Fast, moderate or delayed recovery speed groups did not moderate relationship between school hours and symptoms ($P=0.44$) ▲ Hours of school increased with days from injury 	<ul style="list-style-type: none"> ▲ Subjects not well described ▲ No data regarding numbers of subjects in fast, moderate and delayed recovery speed groups ▲ Short period of study (only 14 days) ▲ Small sample size ▲ No power calculation ▲ Subjects seen at concussion clinic ▲ Dates of study not identified 	12	3
Purcell <i>et al</i> ²⁹	Retrospective chart review September 2009 to December 2012 Canada	n=198 Aged 8–17 years, 220 SRC 72.7% male	SRC assessed at a university sports medicine clinic	Time to symptom-free RTL and RTP; comparison of children 8–12 years with adolescents aged 13–17 years	<ul style="list-style-type: none"> ▲ Symptom-free (days) 8–12 years old=12 vs 13–17 years old=14 ($P=0.04$) ▲ RTL (days) 8–12 years old=4 vs 13–17 years old=2.5 ($P=0.86$) ▲ RTP (days) 8–12 years old=14 vs 13–17 years old=19.5 ($P=0.06$) ▲ 31.3% were aged 8–12 years ▲ Initial SCAT2 symptom scores higher in adolescents (12.3 vs 10.6 in 8–12 years old) ($P=0.07$) ▲ Symptom severity score higher in adolescents (19.0 in 8–12 years old vs 27 in 13–17 years old) ($P=0.08$) ▲ 39.5% of patients symptom-free at 10 days ▲ 16% still symptomatic 4 weeks after injury ▲ 40.3% required academic accommodations ▲ 18.8% of 8–12 years old RTP by 4 weeks versus 62.6% of 13–17 years old ▲ RTL within 5 days: children 60%, adolescents 71.8% 	<ul style="list-style-type: none"> ▲ Retrospective chart review ▲ SCAT2 not validated in paediatric patients ▲ External validity: patients seen at sports medicine clinic (care may not be applicable to community) 	20	4

Continued

Table 1 Continued

Article	Study design, duration, country	Participants (n, age, sex)	Exposure/intervention (Definition)	Outcome (Definition)	Results (including statistical outcomes)	Main limitations	Study quality assessment (DB score)	Level of evidence
Ransom <i>et al</i> ³⁰	Case review—structured school questionnaire Dates not specified USA	n=349 Aged 5–18 years 67% male	Concussion—symptomatic versus recovered/outpatient concussion clinic large regional medical centre, assessed within 28 days of injury Parent and child report (69%), parent-only report (31%)	Nature and severity of symptoms; extent of adverse academic effects of concussion Using PCSI, RBL, CLASS	<ul style="list-style-type: none"> ▲ Symptomatic students and parents reported higher levels of concern for impact of concussion on school performance ($P<0.05$); more school-related problems ($P<0.001$) ▲ Symptomatic high school students reported more adverse academic effects than younger students ($P<0.05$) ▲ Greater severity of PCS associated with more school-related problems and worse academic effects ($P<0.001$) ▲ Higher frequency of impaired neurocognitive scores in symptomatic group ($P<0.001$) ▲ High school students more concerned about academic effects ($P<0.01$) ▲ Math as most problematic class in all grade levels followed by reading/language, arts, science, social studies 	<ul style="list-style-type: none"> ▲ External validity: patients seen in a concussion clinic may not be representative of community ▲ Time period of study not specified ▲ Does not discuss how sample size was determined ▲ No objective data on academic effects; only parent/child reports, which may be influenced by other variables 	17	4
Ransom <i>et al</i> ³¹	Cohort study Dates not specified USA	n=142 Students aged 11–18 years 59% male	Students with concussion evaluated within 4 weeks of injury at an outpatient concussion clinic ▲ PCSI, CLASS, modified for perceived academic problems during MACS or IMPACT	Demonstrate utility of EBA approach to establish predictive measures to identify students at risk for perceived academic problems during concussion recovery	<ul style="list-style-type: none"> ▲ 56% reported low number of academic problems; 44% reported high number of academic problems ▲ SRC: 87% in low group; 77% in high group ▲ High academic problems associated with greater PCS severity, executive problems and exertional response (<0.001) ▲ Cognitive measures did not predict school difficulty ▲ Self-reported symptom ratings predicted perceived academic problems more strongly in high school students compared with elementary and middle school students ($P>0.001$ vs 0.04) ▲ Parent reports did not account for additional significant variance 	<ul style="list-style-type: none"> ▲ Dates not specified ▲ Recall bias: students and parent asked to recall perceived academic problems ▲ External validity: outpatient concussion clinic ▲ No power calculation ▲ 2 different CNTs used 	16	3

Continued

Table 1 Continued

Article	Study design, duration, country	Participants (n, age, sex)	Exposure/intervention (Definition)	Outcome (Definition)	Results (including statistical outcomes)	Main limitations	Study quality assessment (DB score)	Level of evidence
Taubman <i>et al</i> ²²	Prospective observational cohort study 9 December 2011 to 4 June 2013 USA	n=103 Aged 11–19 years; 95 patients completed study 57/95 (60%) male	Patients with concussion who presented within 7 days of injury to a private paediatric practice ▲ Cognitive and physical rest ▲ PCS scale	Recovery of concussion defined as RTS without symptoms or accommodations (quick recovery=RTS in <30 days; prolonged recovery=RTS in >30 days)	<ul style="list-style-type: none"> ▲ 58/95 (61%) rested immediately after injury ▲ Patients who delayed rest were significantly more likely to have prolonged recovery versus those who rested immediately (67% vs 35%, P=0.016) ▲ SRC 62/95 (68%) ▲ In patients who had a quick recovery, RTS was significantly less in those with immediate rest compared with those with delayed rest (P=0.029) and recovered earlier than those who delayed rest (10 days vs 13 days, P=0.050) ▲ PCS score significantly higher in patients with prolonged recovery versus those with quick recovery (40 (3–70) vs 18 (0–100), P=0.002) 	<ul style="list-style-type: none"> ▲ Only 68% SRC ▲ Unclear what PCS score measured (number of symptoms or symptom severity) ▲ Not clear if all potential patients were included ▲ Determination of sample size not outlined ▲ Very strict interpretation of rest recommendation from CISG; did not recommend school absence until all symptoms resolved ▲ rather gradual increase in cognitive activities such that symptoms are not significantly exacerbated 	20	3
Zuckerman <i>et al</i> ²³	Retrospective cohort study January 2012 to May 2015 USA	n=282 Median age 15.8 years (range 11.6–22.2 years) 61.4% male	Middle school, high school and collegiate student-athletes seen at a regional comprehensive SRC centre, telephone interviews	Effect of SES on outcomes after SRC	<ul style="list-style-type: none"> ▲ Previous concussion in 34% ▲ Most concussions in football (32.3%), soccer (16.3%), basketball (15.5%) ▲ Median symptom duration 21 days (range 1–365 days) ▲ Median missed school days, 2 (range 0–90 days) ▲ Median missed days of practices, 10 (range 0–150 days) ▲ No relationship between SES and symptom duration or days of missed practice ▲ Student-athletes with private insurance missed more days of school than those with public insurance (HR 0.46, 95% CI 0.26 to 0.83, P=0.009) 	<ul style="list-style-type: none"> ▲ Mixed age cohort ▲ 58% of cohort unable to be contacted for SES info—external validity concerns ▲ Patients seen at a regional SRC centre—external validity concerns ▲ Retrospective attainment of SES status by phone interview ▲ Very skewed insurance results (90.4% private insurance) ▲ 85% white ▲ Use of zip code as measure of SES ▲ Recall bias—patients contacted a minimum of 3 months after injury, when recovered 	17	3

ANAM, Automated Neuropsychological Assessment Metrics; BCTT, Buffalo Concussion Treadmill Test; BRIEF, Behaviour Rating Inventory of Executive Function; BS, borderline score; CHEERS, Children's Exertional Effects Rating Scale; CISG, Concussion in Sport Group; CLASS, Concussion Learning Assessment and School Survey; CNT, computerised neuropsychological test; DB, Downs and Black checklist; EBA, evidence-based assessment; EEI, Exertional Effects Index; EMR, electronic medical record; IMPACT, Immediate Post-Concussion Assessment and Cognitive Test; LOC, loss of consciousness; MACS, Multimodal Assessment of Cognition and Symptoms for Children; PCS, postconcussion symptoms; PCSI, Post-Concussion Symptom Inventory; PCSS, Post-Concussion Symptom Scale; RBL, retrospective baseline; RTL, return to learn; RTP, return to play; RTS, return to school; SCAT, Sports Concussion Assessment Tool; SES, socioeconomic status; SRC, sport-related concussion; VOR, vestibular ocular reflex.

Table 2 Articles examining strategies or provision/receipt of accommodations on return to school

Article	Study design, duration, country	Participants (n, age, sex)	Exposure/intervention (Definition)	Outcome (Definition)	Results (including statistical outcomes)	Main limitations	Study quality assessment (DB score)	Level of evidence
Carson <i>et al</i> ²⁴	Retrospective EMR review April 2006 to March 2011 Canada	n=159 elementary (24.1%), secondary (55.9%), college/university (20.0%) Ages not specified 170 concussions 61.8% male	SRC student-athletes assessed by same family and sport medicine physician who gave advice regarding cognitive and physical rest after concussion	Premature RTP/RTL defined as recurrence or worsening of symptoms on RTL or RTP using SCAT and self-report	Symptom recurrence with RTP=43.5% and RTL=44.7% Prior concussion associated with more rest days before return to activity (RTA) (P<0.001) Elementary school patients required fewer rest days to RTA (1.6 days) versus high school (25.1) versus college/university (23.6) (P=0.0163)	<ul style="list-style-type: none"> Did not state reasons for going back too soon Mixed age cohort (20% college/university students) Ages not specified No definition of injury characteristics; no mention of when seen in postinjury clinic 	17	4
Conwin <i>et al</i> ²⁵	Retrospective EMR review July 2010 to December 2011 USA	Convenience sample (n=247 selected from 3740) (same data set as ref ²⁴) Median age 14 (7–18) years 58% male	Patients with concussion seen at a tertiary paediatric hospital-affiliated Sports Medicine Clinic	Identify pre-existing characteristics associated with prolonged recovery	<ul style="list-style-type: none"> RTS (median) part-time=12 days (IQR 6–21); full-time without accommodations=35 days (IQR 11–105); symptom-free 64 days (IQR 18–119); full RTP 76 days (IQR 30–153) 73% symptomatic >4 weeks; 73% prescribed school accommodations; 61% had decline in grades Pre-existing characteristics associated with prolonged recovery: depression/anxiety, dizziness at time of injury, abnormal convergence or symptom provocation on oculomotor exam, prior concussion Symptom provocation with eye exam more likely to have accommodations (P=0.0001), take longer to RTS full-time (P=0.050), be symptom-free (P=0.048), to have decline in grades (P=0.035) Patients with abnormal convergence more likely to have accommodations (P=0.038) RTS full-time compared with ages 17–18 years: 13–14 years=1.8 times, 15–16 years=1.6 times Age <12 years: almost 2× longer to be symptom-free History ≥2 concussions more than twice as long to become symptom-free (P=0.039) 	<ul style="list-style-type: none"> Relatively small sample size External validity: referral of more severe concussions Delayed presentation Retrospective review 23% non-SRC 	18	4

Continued

Table 2 Continued

Article	Study design, duration, country	Participants (n, age, sex)	Exposure/intervention (Definition)	Outcome (Definition)	Results (including statistical outcomes)	Main limitations	Study quality assessment (DB score)	Level of evidence
Giang <i>et al</i> ¹⁶	RCT August to November 2011 USA (knowledge transfer)	High schools in Oregon (n=25) (13 intervention, 12 control)	<i>Brain 101</i> website (intervention), CDC material on safety (not concussion) ▲ Pretest and post-test	Effect on parents and athletes' concussion knowledge, behavioural intention and concussion management	<ul style="list-style-type: none"> ▲ Pretest/post-test intervention group outperformed controls on sports concussion knowledge (P<0.0001) ▲ No significant difference in number of school days missed or whether accommodations provided ▲ More intervention schools implemented best practice guidelines ▲ More test schools formed a CMT (P=0.007) with a coordinator (P=0.005) ▲ More students in test schools received a variety of accommodations compared with controls (not statistically significant) 	<ul style="list-style-type: none"> ▲ Did not assess other groups (teachers, coaches, and so on). Outcome primarily RTA, not specifically RTS ▲ Lack of control for other sources of concussion knowledge 	19	2
Grubenhoff <i>et al</i> ⁷	Secondary analysis of a prospective longitudinal cohort observational study October 2010 to March 2013 USA	n=234 Aged 8–18 years enrolled, 179 completed follow-up 70% male (no PPCS) 66% male (PPCS)	Concussed patients seen in urban ED with and without prolonged symptoms (≥3 new symptoms >1 month after injury)	Number of follow-up visits after ED visit; number of school days missed; receipt of academic accommodations	<ul style="list-style-type: none"> ▲ No significant differences in demographic or injury characteristics between no PPCS and PPCS ▲ PPCS occurred in 21% ▲ Only 45% of patients had follow-up appointments after ED visit ▲ Children with PPCS missed twice as many school days (P<0.0001) but did not differ in academic accommodations ▲ Outpatient follow-up associated with receiving academic accommodations ▲ 72% missed at least 1 day of school ▲ 40% received academic accommodations; only 53% of patients with PPCS received accommodations 	<ul style="list-style-type: none"> ▲ Secondary data analysis ▲ External validity: urban ED may not represent community ▲ Urban population only ▲ Short follow-up of only 30 days ▲ Low prevalence of PPCS (21%) ▲ Did not account for reasons for school days missed ▲ 51% non-SRC 	20	4

Continued

Table 2 Continued

Article	Study design, duration, country	Participants (n, age, sex)	Exposure/intervention (Definition)	Outcome (Definition)	Results (including statistical outcomes)	Main limitations	Study quality assessment (DB score)	Level of evidence
Thomas <i>et al</i> ²⁸	Prospective RCT Urban paediatric ED May 2010 to December 2012 USA	n=99 11–22 years of age (median 13.7 years) One-third female 71% SRC	Concussed patients randomised to strict rest (intervention) versus usual care (control) ► Patients completed a diary to record physical and mental activity level, calculate energy exertion and record daily PCS	Concussion recovery and outcome	<ul style="list-style-type: none"> ► After discharge, both groups reported a 20% decrease in energy exertion and physical activity levels ► Intervention group reported less school and after-school attendance for days 2–5 after concussion (3.8 vs 6.7 hours total, $P<0.05$) ► No clinically significant difference in neurocognitive or balance outcomes ► Intervention group reported more daily postconcussive symptoms (total symptom score over 10 days, 187.9 vs 131.9, $P<0.03$) and slower symptom resolution 	<ul style="list-style-type: none"> ► Only 71% SRC ► Included adults ► Urban ED setting may not be generalisable to community ► Strict rest group older ► Selection bias: convenience sample (patients may have been more motivated to participate) ► Diary report subject to recall bias ► Looked only at short-term outcomes (first 7–10 days) ► Did not assess long-term outcomes ► Not blinded 	21	2
Zuckerbraun <i>et al</i> ²⁹	Preimplementation and postimplementation design in 2 urban paediatric EDs Pre-February to July 2009 Post-December 2009 to June 2010 USA	164 participants pre 190 participants post Mean age 10.6 years (SD 3.7) 65% male 27% SRC	Use of modified ACE tools in concussed patients	Impact of ACE-ED tools on patient follow-up and postinjury behaviour	<ul style="list-style-type: none"> ► After implementation, 58% of patients received ACE-ED and 84% received ACE-ED DI ► Follow-up improved at all time points (32% vs 61% at week 4; $P<0.001$) ► After implementation, parental recall of discharge instructions significantly increased, patient's mean total PCS was significantly higher, and report of return to normal activity was significantly longer ► Largest improvement was in recall of instructions for school restrictions ► After implementation, children reported to receive greater support than those before implementation (17% vs 4%, $P<0.001$) ► Two-thirds of parents reported using ACE-ED DI 'Return to School' form 	<ul style="list-style-type: none"> ► ED setting may not be generalisable to other settings ► Only 27% SRC ► Did not control for other sources of concussion knowledge ► Differences between groups may be related to time differences between each phase of the study, not just the intervention ► Possible overdiagnosis of concussion given the definition used (diagnosis could be made with only one sign/symptom) ► Possible underdiagnosis of concussion given that mechanism of injury had to be blunt force trauma to head ► Self-report bias for patient outcomes 	20	3

ACE-ED, Acute Concussion Evaluation-Emergency Department; ACE-ED DI, Acute Concussion Evaluation-Emergency Department Discharge Instruction; CMT, concussion management team; CDC, Centers for Disease Control; DB, Downs and Black checklist; ED, emergency department; EMR, electronic medical record; PCS, postconcussion symptoms; PCSS, Post-Concussion Symptom Score; PPCS, persistent postconcussive symptoms; RCT, randomised controlled trial; RTA, return to activity; RTL, return to learn; RTP, return to play; RTS, return to school; SCAT, Sports Concussion Assessment Tool; SRC, sport-related concussion.

(>21 days) compared with those who were removed from play immediately after injury.⁴⁷ Although RTS was not specifically assessed, cognitive performance was lower and symptoms higher in adolescents not removed from play immediately after concussion.⁴⁷ The presence of risk factors/predictors of persistent symptoms should prompt practitioners to be more cognisant of potential difficulties in RTS and the need for more support in the RTS process.

An additional factor possibly affecting RTS after concussion is SES, though it requires more detailed study to fully understand its significance. The type of family insurance (private vs public), as a proxy for SES, may impact length of school absence following concussive injury, with concussed student-athletes with private insurance missing more days of school than those with public insurance.³³ The reasons for this difference in school attendance were not identified; however, the study population represented only about 40% of the cohort and 90% had private insurance, raising concerns about external validity and selection bias. As well, five other markers of SES were not associated with differences in recovery, which makes the significance of SES in concussion recovery unclear.

Very likely there are other factors and specific deficits after concussion, such as autonomic dysfunction, that may impact on RTS that have not yet been studied in that context.

Strategies or accommodations for RTS

Significant numbers of symptomatic students (17%–73%) may require academic accommodations on RTS after concussion^{29 35 37 39}; however, it is encouraging that a recent study found minimal long-term effects of concussion on academic performance in high school at a population level.⁴⁸ A range of strategies/accommodations to support RTS following concussion have been proposed, including temporary school absence.^{12–16 35–37 39} In the initial few days following a concussion, students may need to stay home with relative restriction of physical and cognitive activities to allow acute symptoms to improve. Exacerbation of symptoms on RTS may indicate suboptimal accommodations or students pushing through symptoms. A secondary analysis of Thomas *et al*'s study³⁸ found that symptom spikes were associated with abrupt increases in mental activity, such as school attendance and extracurricular activities, in some patients but that most students were able to RTS without symptom exacerbation.¹¹ This analysis found that symptom spikes were associated with higher symptom burdens and may be unrelated to physical or mental activity but rather other factors, such as stress or poor sleep. Conversely, some evidence indicates that longer restriction of activity, including school absence, may prolong recovery and increase symptoms.³⁸ However, the optimal length of school absence has not been determined, and is likely to vary according to type, severity and duration of symptoms. Further study of when to recommend RTS is needed to guide clinical practice.

Many review articles and consensus guidelines for RTS recommend minimising school absence to avoid possible secondary problems such as social isolation, depression and anxiety about mounting schoolwork.^{12–19 40 49–52} These guidelines also emphasise that students do not need to be symptom-free to go back to school, although this recommendation requires further validation.^{12–14 18 19 40 49–52} Current clinically derived, consensus-based recommendations suggest that as symptoms improve and students are able to tolerate about 30 min of cognitive activity at home without significant symptom exacerbation, they can try RTS with accommodations as needed. Return to cognitive activity/school may be facilitated by following a stepwise, symptom-limited programme, such as the strategy proposed in the most recent concussion consensus statement (table 3).^{16 18 19 40 53–55} Generic RTS protocols may need to be adapted to different developmental/school levels but more research is needed in this area.⁵⁶

Provision/receipt of other academic accommodations may prevent worsening of symptoms on RTS. Identification of symptom profiles and screening for specific postconcussion deficits, such as visual disturbances and vestibulo-ocular deficits, can be useful in predicting students with higher academic needs requiring symptom-targeted interventions.^{31 41 43 45} Specific academic accommodations, other than a period of school absence, were not examined in the reviewed studies but many guidelines, review articles and a survey of school nurses in Massachusetts list symptom-specific accommodations,^{12–16 40 49–54 56 57} including:

- ▶ frequent breaks
- ▶ reduced workload, modified assignments
- ▶ no tests initially
- ▶ more time to complete assignments
- ▶ preferential seating in the classroom
- ▶ reduced visual and auditory stimulation.

Strategies specific to vision-related problems include avoidance of electronic screens, frequent visual breaks, preprinted notes in large font, audiobooks and oral teaching.^{43 45}

To ensure students recovering from concussion are supported at school and receive accommodations as necessary, school personnel, parents and students need to be educated about current concussion management strategies.^{13 40 49 56 58–61} Surveys of teachers, school principals, athletic therapists, school nurses and parents have identified that concussion education, particularly of school staff and parents, is a key factor for successfully implementing an RTS protocol.^{56 59–62} An RCT demonstrated the effectiveness of a concussion policy as schools with an explicit policy were more likely to implement best practice guidelines for concussion management, and concussed students were more likely to receive academic accommodations after concussion.³⁶ A case study also found that schools who receive concussion education provide more academic accommodations to students after concussion and had more resources available.⁵⁸

Table 3 Graduated return to school strategy^{18 55}

Mental activity	Activity at each step	Goal of each step
1. Daily activities that do not give the child symptoms	Typical activities that the child does during the day as long as they do not increase symptoms (eg, reading, texting, screen time). Start with 5–15 min at a time and gradually build up	Gradual return to typical activities
2. School activities at home	Homework, reading or other cognitive activities outside of the classroom	Increase tolerance to cognitive work
3. Return to school part-time	Gradual introduction of schoolwork. May need to start with a partial school day or with increased breaks during the day	Increase academic activities
4. Return to school full-time	Gradually progress school activities until a full day can be tolerated	Return to full academic activities and catch up on missed work

Evidence-based education programmes and online educational tools can be effective to increase knowledge of concussion and management.^{36 63 64}

Development of school concussion policies can be guided by government legislation. The Ministry of Education in the province of Ontario, Canada, produced a policy memorandum mandating that all provincial school boards develop and implement a concussion policy.⁶⁵ This policy was evaluated a year after implementation in one Ontario school board by survey which found that 92% of schools have an RTP protocol and 77% of schools have an RTS protocol; however, staff training and parent education were identified as areas needing more development.⁶¹ In the USA, the National Collaborative on Childhood Brain Injury recommended five areas of policy/procedural consideration to implement appropriate infrastructure to support RTS of students with concussions, including: (1) definition and training of the interdisciplinary school team; (2) professional development of school and medical communities; (3) identification, assessment and progress monitoring protocols; (4) a flexible set of intervention strategies to accommodate students' recovery needs; and (5) systematised protocols for active communication among medical, school and family team members.⁶⁶

Furthermore, medical guidance can facilitate implementation of school supports for returning students. Providing explicit school-informed discharge instructions and an RTS letter after the initial concussion diagnosis in the ED resulted in significantly greater provision of academic accommodations than when not systematically recommended.³⁹ The sample letter provided (online supplementary appendix A) is recommended to ensure direct communication between the medical provider and the school regarding the student's concussion symptoms and needs. In addition, regular medical follow-up after concussion is crucial to monitor recovery and facilitate RTS. Healthcare providers should identify risk factors/modifiers, such as age and symptomatology, that may prolong recovery and necessitate more intensive accommodations.^{18 19} For instance, adolescents tend to be more symptomatic and more anxious about concussion, and may require more support on RTS.^{29 30 34}

Finally, recovery from concussion for students occurs in various arenas, including home, school, potential job and social/sport. Effective communication between the medical team, school personnel, student and parents/caregivers is essential to ensure successful RTS for every concussed student.^{53 56 59–62 66} Numerous surveys of various stakeholders in concussion management in students have highlighted the need for effective communication between all members of the care team.^{56 59–62} This support network can relieve anxiety about missing school, allow students to focus on recovery and facilitate symptom improvement.^{13 40 49 50 58} It is important to emphasise that full symptom resolution, resulting in full school reintegration, must precede full return to sport and participation in high-risk contact training and gameplay.^{13 14 18 19} However, early introduction of symptom-limited physical activity, supervised by a qualified health professional, is appropriate and may help facilitate RTS.¹⁸

While evidence is emerging, this review highlights the lack of research to guide RTS following SRC in children and adolescents. The studies identified had high risk of bias and study designs were mostly lower levels of evidence (3 or 4); there were only two RCTs. Many questions remain unanswered, such as the optimal length of school absence following SRC and what specific accommodations should be offered. There is an urgent need for high-quality research on SRC in children and adolescents, including RTS, to better inform management guidelines.

Limitations

RTS has been only a recent focus of concussion management and this study identified only 17 studies on this topic. The reviewed studies involved mostly high school and college students, many with mixed age cohorts (children, adolescents and adults). Despite the explosion of concussion research in the last decade, little research has been conducted in children 5–12 years of age. In addition, some studies included non-SRC and did not focus on RTS after concussion. Since we included only English language studies, these results may not be culturally generalisable and there may be language bias.

Other factors limiting generalisation of these review findings include study design, location and sample size. Level 1 evidence was not available as the majority of studies were retrospective and cross-sectional designs, with only two lower quality RCTs. Most papers had external validity and recall bias, particularly those conducted in hospital ED and specialty concussion clinics. Some studies had small sample sizes and used variable definitions of concussion and prolonged recovery. Finally, many of the studies examined school issues/outcomes at a time when there was little guidance on effective in-school management and support. With more informed guidance about RTS and provision of effective symptom-directed accommodations, RTS outcomes will likely improve.

For analysis of risk of bias, we employed the Downs and Black checklist, which was developed as a tool to be used in reviews of non-randomised studies. While we accept that the Downs and Black checklist has its limitations, and is not a perfect fit for this systematic review, it was deemed the best available for this study. An alternative risk of bias tool that would be more appropriate to the topic of RTS after paediatric concussion has yet to be developed.

RECOMMENDATIONS

- A. Schools should have a concussion policy which includes concussion education for teachers, staff, students and parents; defines individuals within the school to direct the provision of individualised student supports; and includes a mechanism to implement and monitor appropriate academic accommodations to students recovering from SRC.
- B. On diagnosis of concussion, students should be provided with a medical letter to facilitate the provision/receipt of necessary academic accommodations.
- C. Students should have early, ongoing medical follow-up following an SRC to identify symptom targets, monitor recovery and aid with RTS, with regular communication between the medical provider, family and school.
- D. Students may require temporary absence from school after concussion. Factors such as age/grade, types and severity of symptoms should be considered in determining the length of school absence. An individualised gradual RTS plan should be considered based on recovery trajectory.
- E. Clinicians should screen for specific deficits, such as visual and vestibulo-ocular disturbances, that may affect RTS and require symptom-specific academic accommodations, as well as assess risk factors/modifiers that may prolong concussion recovery, requiring more intensive academic accommodations. In particular, adolescents may require more academic support.
- F. Future high-quality research should be conducted to determine the criteria for length of absence from school, and appropriate, individualised RTS accommodations that should be provided for children and adolescents with typically recovering and prolonged SRC symptoms.

CONCLUSIONS

Students should rest physically and cognitively initially following a concussion with a gradual increase in activities as symptoms allow. RTS following SRC requires cooperation and communication between healthcare providers, school personnel, parents/caregivers and the student to ensure that individualised accommodations and support are provided to facilitate optimal recovery.

What is already known?

- ▶ The effects of sport-related concussion (SRC) in children and the recovery challenges are different from adults.
- ▶ Adolescents may take longer to recover from SRC than adults and younger children.
- ▶ Return to school should be a priority in the management of children and adolescents following SRC.

What are the new findings?

- ▶ Factors such as symptomatology, age/school level, course load and rest after injury can affect return to school following SRC.
- ▶ Schools with a concussion policy tend to offer more academic accommodations to students recovering from SRC.
- ▶ Regular medical follow-up after concussion and provision of a return to school letter can help facilitate the provision of academic support.
- ▶ Many students require a brief absence from school and academic accommodations on return to school following an SRC to avoid significant exacerbation of concussion symptoms.

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American Medical Society for Sports Medicine position statement on concussion in sport

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ABSTRACT

Sport-related concussion (SRC) is a common injury in recreational and organised sport. Over the past 30 years, there has been significant progress in our scientific understanding of SRC, which in turn has driven the development of clinical guidelines for diagnosis, assessment and management of SRC. In addition to a growing need for knowledgeable healthcare professionals to provide evidence-based care for athletes with SRC, media attention and legislation have created awareness and, in some cases, fear about many issues and unknowns surrounding SRC. The American Medical Society for Sports Medicine (AMSSM) formed a writing group to review the existing literature on SRC, update its previous position statement, and to address current evidence and knowledge gaps regarding SRC. The absence of definitive outcomes-based data is challenging and requires relying on the best available evidence integrated with clinical experience and patient values. This statement reviews the definition, pathophysiology and epidemiology of SRC, the diagnosis and management of both acute and persistent concussion symptoms, the short-term and long-term risks of SRC and repetitive head impact exposure, SRC prevention strategies, and potential future directions for SRC research. The AMSSM is committed to best clinical practices, evidence-based research and educational initiatives that positively impact the health and safety of athletes.

BACKGROUND AND PURPOSE

The American Medical Society for Sports Medicine (AMSSM) represents over 3800 sports medicine physicians who have completed specialty training in sports medicine after a residency programme in family medicine, internal medicine, paediatrics, emergency medicine, or physical medicine and rehabilitation, many of whom have extensive expertise in concussion evaluation and management, including serving as sideline team physicians at all levels of sport. Sport-related concussion (SRC) is an important topic for sports medicine physicians and there is a rapidly expanding knowledge base in this area. SRC has become a focus of both public concern and media attention. The purpose of this statement is to provide a narrative review of the existing literature and best practices to assist healthcare providers with the evaluation and management of SRC, and to establish the level of evidence, current knowledge gaps and areas requiring additional research. The first AMSSM

position statement on SRC was published in 2013 and this is an update to that statement.¹

WRITING GROUP SELECTION AND PROCESS

The AMSSM Board of Directors appointed the chair (KGH) to assemble a writing group that was carefully selected to include a balanced panel of sports medicine physicians experienced in sideline and office evaluation and management of SRC, actively engaged in SRC research, and with demonstrated leadership in the area of SRC. Select subspecialty experts were invited to provide diverse viewpoints. Select members of the board, the publications committee and writing group were surveyed to determine topics of interest for the statement and generate an initial outline. Systematic reviews were used as primary literature sources when available. The writing group engaged in conference calls, review of the literature and written communication prior to an inperson meeting in Chicago, Illinois, on 9–10 February 2018. There were additional conference calls, emails and iterations of the outline and manuscript to produce the final document. This document uses the Strength of Recommendation Taxonomy to grade level of evidence² (table 1).

WHO SHOULD EVALUATE AND MANAGE SRC?

The clinical care, including assessment and management, of athletes with SRC is ideally performed by healthcare professionals with appropriate training and experience. Sports medicine physicians are uniquely trained to provide care along the continuum of SRC from the acute evaluation through return to learn and return to sport, and to manage both complications of SRC and coexisting medical issues. While the majority of SRCs resolve within 1–4 weeks, athletes with complicated or prolonged recovery may require a multidisciplinary team with specific expertise across the scope of concussion management. (C)

DEFINITION OF CONCUSSION

Concussion is defined as a traumatically induced transient disturbance of brain function that involves a complex pathophysiological process.¹ Concussion is a subset of mild traumatic brain injury which is classified based on acute injury characteristics at the less severe end of the brain injury spectrum.¹ The clinical signs and symptoms of concussion cannot be otherwise explained by drug, alcohol, medication use, or other injuries (such as cervical injuries or peripheral vestibular dysfunction) or other comorbidities (psychological or medical conditions).^{3,4}



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Table 1 Strength of Recommendation Taxonomy

Strength of recommendation	Basis for recommendation
A	Consistent, good-quality, patient-oriented evidence.
B	Inconsistent or limited-quality, patient-oriented evidence.
C	Consensus, disease-oriented evidence, usual practice, expert opinion, or case series for studies of diagnosis, treatment, prevention or screening.

PATHOPHYSIOLOGY

The pathophysiology of concussion is not completely understood but has been characterised as force delivered to the brain causing disruptive stretching of neuronal cell membranes and axons resulting in a complex cascade of ionic, metabolic and pathophysiological events.⁵ Current understanding of the pathophysiology of concussion is primarily based on animal models that have limitations when extrapolated to humans. It appears that stress applied to the neuron causes changes in intracellular ion concentrations, indiscriminate release of neurotransmitters, mitochondrial dysfunction leading to the production of reactive oxygen species, and increased utilisation of glucose to restore sodium and potassium balance.⁵ The increased glucose utilisation combined with the injury-related decrease in resting cerebral blood flow creates an energy mismatch.^{6,7} Inflammatory cell activation, axonal degeneration and altered plasticity may occur in the subacute and chronic stages of concussion. Animal and human studies support the concept of increased brain vulnerability following an initial injury to a second brain tissue insult that can result in worsening cellular metabolic changes and more significant deficits.^{8–10}

EPIDEMIOLOGY

Concussion is common in organised scholastic and non-scholastic sport, non-traditional recreational activity (eg, extreme, individual), and routine activities of daily living. A recent report using data from emergency room visits, office visits and a high school injury surveillance system estimated 1.0–1.8 million SRCs per year in the 0–18 years age range and a subset of about 400 000 SRCs in high school athletes.¹¹ While this estimate is likely accurate, determining actual sport-based or activity-based concussion rates is difficult.

Injury surveillance systems in the USA primarily study a small sample of organised college or high school sports to estimate concussion rates. Numbers are limited or not available for recreational or club sports or for activities such as bicycling, skiing, snowboarding, skateboarding, the fighting arts or for youth/early adolescent athletes. An estimate of risk requires a numerator (the number of concussions) and a denominator (the amount of time participating in the activity). Numerators may vary based on under-reporting or over-reporting of concussion or inaccurate diagnosis, while denominators are difficult to accurately track. Most current estimates use ‘athlete-exposures’ as the denominator, defined as an athlete participating in one practice or game; however, estimates of risk may change dramatically if actual hours of participation are tracked or if a seasonal or annual risk of concussion is determined. Seasonal or annual risk may be a more readily understood concept. It is estimated that over 50% of concussions in high school-aged youth are not related to organised sports and only 20% are related to organised school team sports.¹¹ Between 2% and 15% of athletes participating in organised sports will suffer a concussion during one season^{12–29} (table 2).

DIAGNOSIS OF CONCUSSION

The diagnosis of concussion is challenging and based on clinical assessment. Concussion diagnosis is complicated by a lack of validated, objective diagnostic tests, a reliance on self-reported symptoms, and confounding symptoms caused by other common conditions. Non-specific symptoms such as headaches, mood changes, ‘fogginess’, dizziness, visual changes, fatigue and neck pain are all associated with concussion but can also originate from other aetiologies. In addition, symptoms may be delayed in onset or initially unrecognised by the athlete. Concussion remains a clinical diagnosis made by carefully synthesising history and physical exam findings as the injury evolves. (C)

Preseason

Preparation for the care of athletes begins prior to any practice or competition with a preparticipation physical evaluation (PPE) and the development and practice of an emergency action plan.³⁰ The PPE should include history of concussion or other traumatic brain injury (number, recovery course and time between injuries), as well as the presence of other premorbid/comorbid conditions, or modifiers, that may make the diagnosis or management of concussion more difficult, including a history of learning disorder, attention deficit disorder, motion sickness or sensitivity, mood disorders or a personal or family history of migraine headache disorder, and information on current medication use. (C)

Several organisations recommend baseline evaluation prior to sports participation to assist with diagnosis and return-to-play decisions in an athlete with a suspected concussion.^{31,32} Several factors require consideration before implementing any test into an evaluation programme for baseline or postinjury purposes. There is considerable normal variation in test performance with repeat testing in non-injured athletes^{23,33,34}; some tests are associated with a cost, and in younger athletes with rapidly developing brain function both the ideal interval to repeat baseline testing and age-related differences in test performance are unknown. Common baseline evaluations include the battery of standard sideline assessment tests found in the Sports Concussion Assessment Tool Fifth Edition (SCAT5) and/or computerised proprietary neuropsychological tests such as CogSport, Automated Neuropsychological Assessment Metrics, Central Nervous System Vital Signs, or the Immediate Post-Concussion Assessment and Cognitive Testing. An initial baseline evaluation including a symptom checklist, cognitive evaluation and balance assessment has been considered ‘best practice’ for all athletes by the National Collegiate Athletic Association. However, repeat annual baseline testing after an initial baseline evaluation is no longer recommended for collegiate athletes.³¹ Baseline testing may be useful in some cases but is not necessary, required or an accepted standard of care for the appropriate management of SRC. (B)

Sideline assessment

Observation of athletes during practice and competition by medical personnel is valuable for potential concussion recognition and initial management. Reasons for immediate removal and prompt evaluation include loss of consciousness (LOC), impact seizure, tonic posturing, gross motor instability, confusion or amnesia. Any of these reported or observed signs should result in removal from practice or competition for at least the rest of the day. Concerns for more serious head injury including prolonged LOC, severe or worsening headache, repeated emesis, declining mental status, focal neurological deficit or suspicion of

Table 2 Seasonal risk of concussion in sports

Author	Type of athletes	Years of study	Seasons (n)	Athletes (n)	Concussed	Concussed per player/season (%)
Football						
Barr and McCrea ¹⁵	High school and college football	1997–1999	2	1313	50	1.9
McCrea ¹⁸	High school and college football	1998–1999	2	1325	63	2.4
McCrea <i>et al</i> ¹⁷	High school and college football	1999–2001	3	2385	91	3.8
McCrea <i>et al</i> ¹⁹	College football	1999–2001	2		94	3.9
Barr <i>et al</i> ¹⁶	High school and college football	2008–2009	2	823	59	7.2
Seidman <i>et al</i> ²⁴	High school football	2013	1	343	9	2.6
Dompier <i>et al</i> ²⁵	Football	2012–2013	2	20479	1178	5.8
	Youth football	2012–2013	2	4092	136	3.3
	High school football	2012–2013	2	11957	767	6.4
	College football	2012–2013	2	4430	275	6.7
	College football	2011–2014	4	9718	518	5.3
Houck <i>et al</i> ²⁶	College football	2006–2015	9	945*	118	12.5
Bretzin <i>et al</i> ¹⁴	High school football	2015–2016	1	39520	1530	3.9
Total football				67 133	3192	4.8
All sports						
Galetta <i>et al</i> ²⁷	Football, sprint football, men's and women's soccer and basketball	2010–2011	1	219	10	4.6
Marinides <i>et al</i> ²⁰	College athletes	2011–2012	1	217	30	13.8
Galetta <i>et al</i> ²¹	Ice hockey/lacrosse youth and college		1	332	12	3.6
Leong <i>et al</i> ²⁸	Football, men's and women's basketball	2012–2013	1	127	11	8.7
Putukian <i>et al</i> ²²	College athletes	2011–2012	1	263	32	12.2
Chin <i>et al</i> ²³	High school and college athletes	2012–2014	3	2018	166	2.7
Kerr <i>et al</i> ¹²	NCAA athletes	2011–2014	4	32 156	1410	4.4
	Men's baseball	2011–2014	4	1757	13	0.7
	Men's basketball	2011–2014	4	1889	74	3.9
	College football	2011–2014	4	9718	518	5.3
	Men's ice hockey	2011–2014	4	3689	253	6.9
	Men's lacrosse	2011–2014	4	1768	44	2.5
	Men's soccer	2011–2014	4	1810	29	1.6
	Men's wrestling	2011–2014	4	821	65	7.9
	Women's basketball	2011–2014	4	1690	90	5.3
	Women's ice hockey	2011–2014	4	1301	94	7.2
	Women's lacrosse	2011–2014	4	1522	49	3.2
	Women's softball	2011–2014	4	1569	38	2.4
	Women's soccer	2011–2014	4	2831	93	3.3
	Women's volleyball	2011–2014	4	1791	50	2.8
Dhawan <i>et al</i> ²⁹	Youth hockey		1	141	20	14.2
Tsushima <i>et al</i> ¹³	Athletes grades 8–12	2013–2014	1	10334	1250	12.1
Bretzin <i>et al</i> ¹⁴	High school athletes in 15 sports	2015–2016	1	193 757	3352	1.7
Total				239 564	6293	2.6

*Total number of athletes estimated using 105 athletes per year on football roster. NCAA, National Collegiate Athletic Association.

significant cervical spine injury should trigger activation of the emergency action plan. (C)

Along with directly observed signs of potential concussion, if video review demonstrates findings such as LOC, motor incoordination or balance problems, or having a blank or vacant look, the athlete should be immediately removed from participation for evaluation.^{35–37} A healthcare professional familiar with the athlete is best suited to detect subtle changes in the athlete's personality or test performance that may suggest concussion. If a concussion is suspected but not diagnosed, removal from play and serial evaluations are recommended.³⁸ Concussion assessment should be performed in a distraction-free environment with adequate time for examination and administration of

concussion tests. If it is clear an athlete has an SRC, additional sideline testing can be discontinued. Sport-specific rules may not allow adequate time for evaluation, and modifying these rules remains an area for improvement within the governing bodies of some sports. (C)

When the sports medicine clinician becomes aware of a potential injury, the athlete is approached and a brief history of the event is obtained from the athlete and those who witnessed the event or athlete behaviour. How the athlete responds to the elements of orientation, memory, concentration and balance is evaluated, as well as speech patterns and how the athlete appears to be processing information. Cervical palpation and range of motion (ROM) are also typically performed to assess for other

injury. If SRC is suspected, these preliminary evaluations are followed by a thorough and specific concussion assessment. (C)

The psychometric properties of sideline assessment tools need to be understood to accurately interpret the results.³⁹ Knowledge of test reliability, or the stability of a test administered on more than one occasion, can assist in differentiating SRC changes from normal variation. The test-retest reliability of commonly used sideline concussion evaluation tests is below the generally accepted threshold for clinical utility (0.75–0.90).^{33–39} Many concussion tests have a learning effect that must be factored into analysis with repeated administration of the test. The sensitivity (ability of a test to correctly identify a condition) and specificity (ability of a test to correctly identify those without a condition) of many of the individual tests used to evaluate concussion are not ideal. The area under the curve of a receiver operator characteristic curve is another way to evaluate the usefulness of a test, with values greater than 0.9 considered excellent, 0.8 good, 0.7 fair, 0.6 poor and 0.5 failing. Table 3 outlines the psychometric properties and the number of subjects and concussions studied of commonly used sideline evaluation tools. There is evidence that combining tests of different functions to form a multimodal assessment increases sensitivity and specificity for diagnosis.^{22–33} The age of the athlete needs to be considered when using and evaluating testing tools. SRC is a heterogeneous injury which contributes to the varied sensitivity of screening tools, which are often domain-specific assessments. All tests should be interpreted in combination with relevant clinical information to arrive at the most accurate conclusion. (B)

Symptoms are the most sensitive indicator of concussion.^{23–40} The reliability of athlete-reported symptoms depends on accurate reporting, which may be affected by a lack of recognition of the signs and symptoms of concussion or conscious false reporting to avoid loss of playing time. An athlete experiencing any increase in symptoms after a suspected concussion should be held from play until further evaluation can confirm or exclude SRC. (B)

The SCAT5⁴¹ and the Child SCAT5⁴² are the evaluation tools recommended by the Concussion in Sport Group (CISG) for assessing a suspected concussion. These tests offer a standardised approach to sideline evaluation which incorporates multiple domains of function and are widely available at no cost. The SCAT5 comprised a brief neurological examination, a symptom checklist, a brief cognitive assessment (the Standardized Assessment of Concussion [SAC]) and a balance assessment (the modified-Balance Error Scoring System). The SAC in the SCAT5 offers optional 10-word lists for immediate and delayed memory and longer digit backwards sequencing to minimise the ceiling effect, which was a weakness of the SCAT3.⁴³ There are currently no studies of the SCAT5 or Child SCAT5's sensitivity and specificity for SRC to determine if these versions are improved over the earlier versions. (C)

The primary endpoint for sideline assessment is to determine the probability that an athlete has sustained a concussion. If the athlete is deemed unlikely to have had a concussion, continued participation should be safe. If the evaluation indicates a definite or probable concussion, the athlete should be removed from participation with no same-day return to play. SRC is an evolving injury and should be serially reassessed when suspected. (C)

Office/Subacute assessment

An office assessment should include a comprehensive history and neurological examination including details of injury mechanism, symptom trajectory, neurocognitive functioning, sleep/wake

disturbance, ocular function, vestibular function, gait, balance and a cervical spine exam. The utility of sideline neurocognitive and balance assessments to identify concussion decreases as early as 3 days after injury.⁴¹ Symptom checklists can be useful to track symptom trajectory. To confirm the diagnosis of SRC, there should typically be a clear mechanism consistent with concussion; characteristic signs, symptoms and time course of concussion; and no other cause for the constellation of clinical findings. It is not unusual for symptoms, signs and testing to normalise by the time an office visit occurs,⁴⁴ in which case the visit should focus on recommendations for safe return to school and sport. (C) If computerised neurocognitive tests were performed prior to injury, they are often repeated during this assessment period.

If an athlete has ongoing symptoms at the time of the first office visit, the visit should focus on excluding other pathologies and providing anticipatory guidance. Other pathologies like cervicogenic pain, headache/migraine disorder, mood disorders and peripheral vestibular conditions may either be the cause of symptoms or may represent previous pathology worsened or unmasked by concussion. A complete cervical spine evaluation, screenings for psychosocial or mental health disorders, and additional tests evaluating the vestibular and oculomotor system may be helpful in the office setting to determine the aetiology of symptoms. Vestibular symptoms occur in 67%–77% and ocular impairment occurs in approximately 45% of SRC.^{45–46} The Vestibular/Ocular Motor Screening (VOMS) tool offers a brief, standardised way to assess vestibular-ocular function that can be used in athletes older than 10 years of age.⁴⁶ It is a no-cost evaluation of symptom provocation with smooth pursuits, saccades, the vestibular ocular reflex, vestibular motion sensitivity and convergence distance.⁴⁶ (C)

Other considerations in the assessment of concussion

There is a need for definitive, objective and clinically useful tools for the diagnosis of concussion. This interest has led to innovation and fast-paced changes with the ongoing need for refinement and validation of these efforts.

Emerging sideline concussion evaluation tools

Other sideline evaluation tools have been developed, including tests of vestibular-ocular function and reaction time. The physical exam components of the VOMS are becoming more frequently used in the office setting, but the role of formal VOMS testing on the sideline has not yet been studied. The King-Devick (KD) test is a proprietary, timed saccadic eye movement test requiring individuals to quickly read numbers aloud.²⁸ The KD requires a baseline test as well as an understanding of potential learning and practice effects to be useful. Simple reaction time as a sideline screen has also been studied using a dropped weighted stick.⁴⁷ Further research including larger numbers and control subjects is needed for these tests.

Other technologies such as app-based measures of reaction time, eye trackers, postural stability, speech pattern, quantitative electroencephalography and various abbreviated neurocognitive tests are being developed. Some are available on portable electronic platforms with the ability to share information with multiple users. These newer technologies do not have sufficient research to establish their utility. The mention of all of these sideline tools does not imply AMSSM endorsement. (C)

Helmeted and non-helmeted impact monitors

Current impact sensor systems indirectly monitor linear and angular acceleration forces to the brain; however, they

Table 3 Psychometric properties of sideline assessment tests*

Author	Type of athletes	Athletes (n)	Concussed	Controls	Test and/or criterion	Sensitivity (%)	Specificity (%)	Test-retest reliability	AUC
Symptoms									
McCrea <i>et al</i> ¹⁹	College football	1631	94	56		89	100		
Putukian <i>et al</i> ²²	College athletes	263	32	23	SCAT2	84	100		
Chin <i>et al</i> ²³	High school and college athletes	2018	166	164					0.88
Resch <i>et al</i> ¹²⁰	College athletes		40	40	Revised Head Injury Scale	98	100		
Garcia <i>et al</i> ⁴⁰	College athletes		733		SCAT3	93	97		0.98
Broglio <i>et al</i> ³³	College athletes	4360						0.40†	
Total		3192	1065	283					
Standardized Assessment of Concussion									
Barr and McCrea ¹⁵	High school and college football	1313	50	68	3-point decline	72	94	0.55‡	
McCrea <i>et al</i> ¹⁹	High school and college football	1325	63	55	3-point decline	78	95	0.48§	
McCrea <i>et al</i> ¹⁷	High school and college football	2385	91		<10th percentile of normative	79			
McCrea <i>et al</i> ¹⁹	College football	1631	94	56	?	80	91		
Echlin <i>et al</i> ¹²¹	Ice hockey (age 16–21)	67	21	–	1-point decline	54			
Barr <i>et al</i> ¹⁶	High school and college football	823	59	31	?	46	87		
Marinides <i>et al</i> ²⁰	College athletes	217	30		2-point decline	52	82		
Galetta <i>et al</i> ²¹	Hockey/lacrosse youth/college	332	12	14	2-point decline	20	21		0.68
Putukian <i>et al</i> ²²	College athletes	263	32	23	<10th percentile of normative	41	91		
Chin <i>et al</i> ²³	High school and college athletes	2018	166	164				0.39†	0.56
Broglio <i>et al</i> ³³	College athletes	4874						0.39†	
Total		15 284	618	411					
BESS									
McCrea <i>et al</i> ¹⁹	College football	1631	94	56	Modified BESS	36	95		
Broglio <i>et al</i> ¹²²	Young adults	48			BESS			0.60¶	
Barr <i>et al</i> ¹⁶	High school and college football	823	59	31	Modified BESS	31	71		
Putukian <i>et al</i> ²²	College athletes	263	32	23	Modified BESS	25	100		
Chin <i>et al</i> ²³	High school and college athletes	2018	166	164	Modified BESS			0.54†	0.56
Broglio <i>et al</i> ³³	College athletes	2894			BESS			0.41†	
Total		4735	351	274					
Oculomotor (KD)									
Galetta <i>et al</i> ²⁷	Football, men's/women's basketball	219	10		Worsening of KD time	100			
Leong <i>et al</i> ¹²³	Boxing				Worsening of KD >5s	100	100	0.9†	
Galetta <i>et al</i> ²¹	Hockey/lacrosse youth/college	332	12	14	Worsening of KD time	75	93		0.92
Leong <i>et al</i> ²⁸	College football, men's/women's basketball	127	11		Worsening of KD time	89		0.95†	
King <i>et al</i> ¹²⁴	Amateur rugby					94	100	0.92†	
Marinides <i>et al</i> ²⁰	Football, women's lacrosse, soccer	217	30		Worsening of KD time	79			
Seidman <i>et al</i> ²⁴	High school football	343	9		Worsening of KD time	100	100		
Dhawan <i>et al</i> ²⁹	Youth hockey	141	20		Worsening of KD >5s	100	91		
Fuller <i>et al</i> ¹²⁵	Elite English rugby		145		Worsening of KD time	60	39		0.51

Continued

Table 3 Continued

Author	Type of athletes	Athletes (n)	Concussed	Controls	Test and/or criterion	Sensitivity (%)	Specificity (%)	Test-retest reliability	AUC
Hecimovich <i>et al</i> ¹²⁶	Australian football		22	22	Worsening of KD time	98	96	0.91†	
	Professional football	1223	84	63	Worsening of KD	84	62	0.88†	
Broglio <i>et al</i> ³³	College athletes	755						0.74†	
Eddy <i>et al</i> ¹²⁷	Recreational college athletes	63						0.90†	
Total		2041	310	99					
Clinical reaction time (dropped weighted stick)									
Eckner ¹²⁸	College football, wrestling, women's soccer	102						0.65†	
Eckner <i>et al</i> ⁴⁷	High school and college athletes	28	28		90% CI	50	86		
Broglio <i>et al</i> ³³	College athletes	261						0.32†	
Total									

Test-retest reliability:

*Study selection criteria: athletes competing at any level of sport using any sideline screening assessment or studies with test-retest reliability of included assessments. All studies were of high risk of bias as assessed using Quality Assessment of Diagnostic Accuracy Studies - 2, except for Fuller *et al*,¹²⁵ which was of low risk of bias.

†Intraclass correlation coefficient.

‡Reliable change index.

§Pearson's correlation coefficient.

¶Generalisability coefficient.

AUC, area under the curve; KD, King-Devick; SCAT, Sports Concussion Assessment Tool.

may not consistently record head impacts or forces transmitted to the brain. Neither a device nor a specific threshold measure of force or angular acceleration can be used to diagnose concussion.^{38 48} Some athletes experience high forces with no clinical symptoms of concussion, and some athletes sustain a concussion at much lower impact forces, making current impact measures a poor predictor of SRC.⁴⁹ The number, location, density and individual thresholds of head impacts may be important parameters. At this time impact monitors are a research tool requiring additional study and are not validated for clinical use in the diagnosis or management of SRC. (B)

Biomarkers of concussion

Head CT is rarely necessary in the evaluation of SRC but should be used when clinical suspicion for intracranial bleeding or macrostructural injury exists. Intracranial bleeds are rare in the context of SRC, but can occur, and CT is the standard evaluation tool for these and other suspected neurosurgical emergencies in acute and critical care. Conventional brain MRI is not commonly used in the evaluation of concussion, but may have value in cases with atypical or prolonged recovery. Newer, advanced multimodal MRI technologies (eg, diffusion tensor imaging, resting-state functional MRI, quantitative susceptibility imaging, magnetic resonance spectroscopy, arterial spin labelling) are being studied in research protocols aimed at understanding the neurobiological effects and recovery after SRC.⁵⁰ Additional research will be required to determine the clinical utility of advanced neuroimaging in the setting of SRC. (B)

The role of fluid biomarkers (blood, saliva, cerebrospinal fluid) in the diagnosis of SRC is also under active investigation.⁵⁰ Proteomic markers of injury and recovery in more severe forms of civilian neurotrauma and traumatic brain injury have shown some promise; however, in recent systematic reviews, the overall level of evidence is low for using fluid biomarkers for diagnosis of SRC.⁵⁰ Fluid biomarkers have potential for informing the pathophysiology

of concussion and neurobiological recovery, but more research is required to determine their clinical utility.⁵⁰ Recent Federal Drug Administration (FDA) approval of a two-protein brain trauma indicator with glial fibrillar acidic protein and ubiquitin carboxy-terminal hydrolase L1, and clinical use of S100 calcium-binding protein β in Europe, shows promise for ruling out intracranial bleeds and structural damage to reduce utilisation of head CTs in the emergency department setting. At this time, none of these tests has a role in the diagnosis or management of SRC. (B)

There is currently no scientific support for genetic testing in the evaluation and management of athletes with SRC, and additional research is needed to determine how genetic factors influence risk of injury and recovery after SRC.⁵⁰ (B)

Clinical profiles

The recognition of heterogeneity among concussion presentations has led to the concept of 'clinical profiles' or 'clinical domains' with the potential for more specific prognostic value and targeted treatment.⁵¹⁻⁵³ It must be stressed that this is an emerging concept and does not represent clinical standards or norms but may serve to facilitate individualised patient management. Although SRC may present with symptoms representing only one clinical profile, it is more often that SRC presents with symptoms and impairment supporting multiple profiles. It is currently unknown at what postinjury time point these profiles become clinically important as most SRCs resolve with time. Thus, clinical profiles may be more applicable to athletes with persistent symptoms. More research in this area is needed. The diverse symptoms and functional impairments of SRC are variously categorised with overlapping symptom clinical profiles that may include cognitive, affective (anxiety/mood), fatigue, migraine/headache, vestibular and ocular⁵²⁻⁵⁴ (see figure 1). How clinical profiles fit into the clinical care of SRC warrants additional research. (C)

MANAGEMENT OF CONCUSSION

SRC clinical symptoms typically resolve spontaneously, with 80%–90% of concussed older adolescents and adults returning

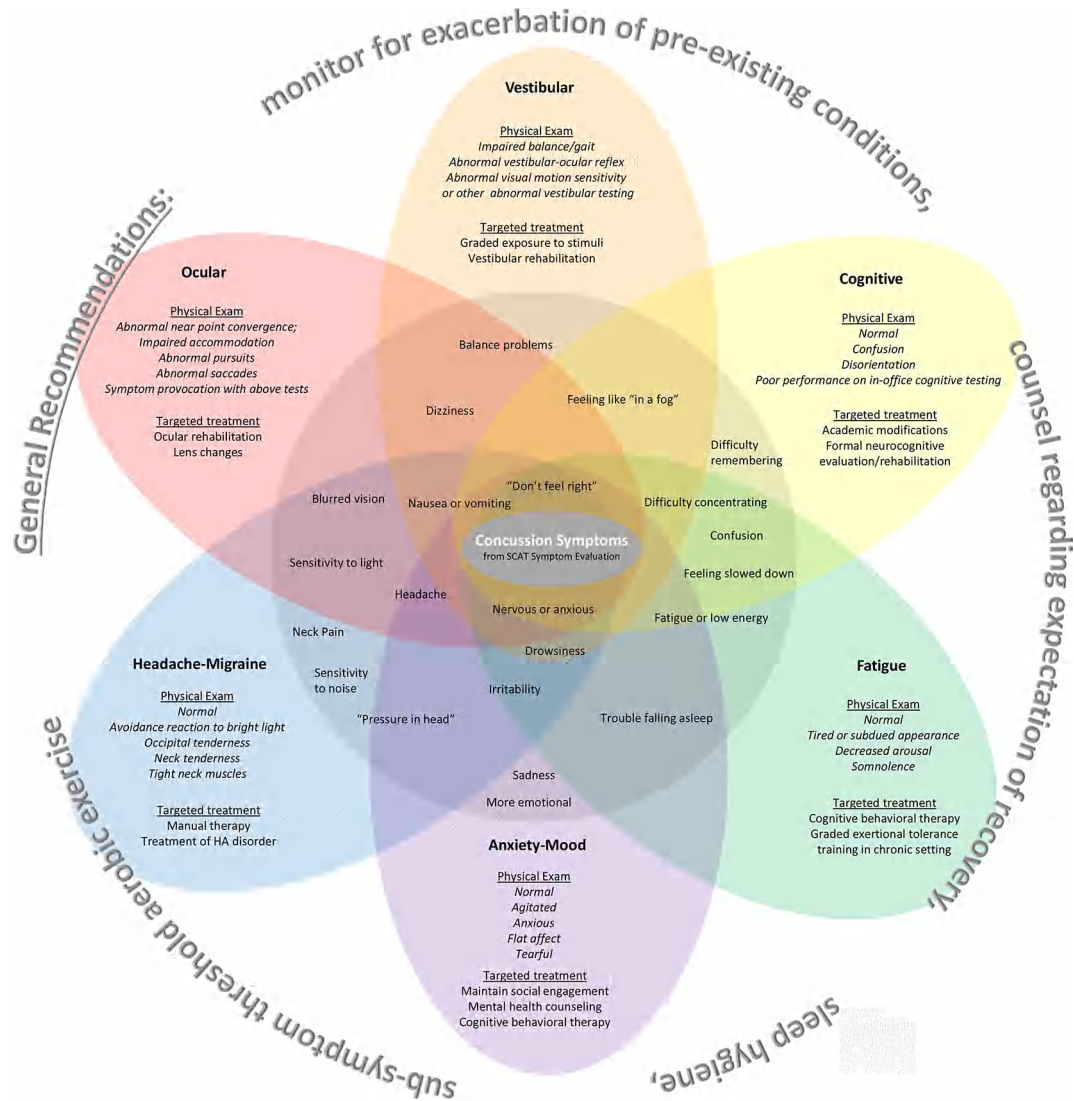


Figure 1 Overlapping clinical profiles: an emerging concept to facilitate individualised management after sport-related concussion. Most patients have features of multiple profiles. HA, headache; SCAT, Sports Concussion Assessment Tool.

to preinjury levels of clinical function within 2 weeks.⁵⁵ In younger athletes, clinical recovery may take longer, with return to preinjury levels of function within 4 weeks.⁵⁶ It is important to communicate the usual time course and outcome to patients and families to relieve the anxiety that often accompanies this injury. Symptom checklists are useful for tracking symptomatic recovery. Clinical recovery based on our current evaluation methods and SRC testing may not coincide with complete physiological recovery, although the functional, clinical and long-term significance of persistent imaging findings and subtle neuropsychological deficits on tests used in research settings is unknown.⁴⁴

Predicting recovery

The most consistent predictor of recovery from concussion is the number and severity of acute and subacute symptoms.⁵⁷ Subacute headache and depression after injury are risk factors for symptoms persisting for >1 month.⁵⁷ A preinjury history of mental health problems, particularly depression, appears to increase the risk for prolonged symptoms.⁵⁶ Athletes with learning disabilities or attention deficit/hyperactivity disorder do not appear to be at risk for prolonged recovery.⁵⁷ More research is needed to

address other SRC modifiers, including age and sex, although some studies demonstrate a longer period of reported symptoms in women compared with men and for adolescent athletes.⁵⁷ Newer research suggests that a lower symptom-limited heart rate threshold during graded exercise testing within a week of SRC in adolescents predicts a longer recovery time.⁵⁸ (B)

Treatment of SRC

In this section the role of rest, physical activity and nutraceuticals are discussed.

Prescribed rest

Prescribed cognitive and physical rest has been the mainstay of treatment for the last several decades despite insufficient evidence to support this approach.^{59 60} Earlier animal data suggested that uncontrolled or forced early exercise is detrimental to recovery⁶¹⁻⁶³; however, recent data in aerobically trained animals given early access to exercise showed improved outcomes compared with no or delayed exercise or to social isolation.⁶⁴ In human studies, strict rest after SRC slowed recovery and led to an increased chance of prolonged symptoms.^{65 66} Total

rest, that is, 'the dark room' or 'cocoon therapy', may have detrimental effects similar to social isolation effects seen in animal studies and is no longer recommended.^{3,51} Consensus guidelines endorse 24–48 hours of symptom-limited cognitive and physical rest followed by a gradual increase in activity, staying below symptom-exacerbation thresholds.³ Further research is needed to define the role of prescribed rest in recovery. (C)

Activity and exercise

Exercise intolerance is an objective physiological sign of acute concussion that appears to reflect impaired autonomic function and control of cerebral blood flow.^{67,68} Exercise improves autonomic nervous system balance and CO₂ sensitivity, cerebral blood flow regulation, brain-derived neurotrophic factor gene upregulation, and both mood and sleep.^{69,70} Emerging data suggest that symptom-limited activity, including activities of daily living and non-contact aerobic exercise, may begin as soon as tolerated after an initial brief period (24–48 hours) of cognitive and physical relative rest.³ There is some preliminary evidence that subsymptom threshold exercise improves recovery in acute concussion,^{71,72} and early symptom-limited graded exercise testing appears to be safe in athletes.⁵⁸ Understanding for whom and when to begin early exercise after SRC remains an ongoing area of exploration. Early activity and exercise do not take the place of a graded return to sport. (B)

Role of nutraceuticals

Interest in nutraceuticals for prevention and treatment of concussion is high. There is emerging evidence in animal models of concussion that some supplements may protect or speed recovery from concussion, specifically focused on certain B vitamins, omega-3 fatty acids, vitamin D, progesterone, N-Methyl-D-aspartate, exogenous ketones and dietary manipulations (eg, ketogenic diet).^{73–75} There is a gap, however, between experimentally produced injury in an animal model and the heterogeneous mechanisms that cause human concussion during sports activities. There is no human evidence that nutraceuticals prevent or ameliorate concussion in athletes.⁷⁶ Supplements are not FDA-regulated and potential for harm or contamination should be considered. This is an area that requires significantly more research to guide future recommendations. (C)

Persistent postconcussive symptoms

Postconcussion syndrome or disorder is a term that has been frequently used to describe patients with lingering symptoms after a sport-related or recreation-related concussion, but often those patients do not meet the diagnostic criteria for these diagnoses. A preferred term is persistent postconcussive symptoms (PPCS), defined as symptoms that persist beyond the expected recovery time frame (>2 weeks in adults, >4 weeks in children).⁴⁴ Persistent symptoms do not necessarily represent ongoing concussive injury to the brain. It is not unusual for common symptoms to be inappropriately or mistakenly attributed to concussion; therefore, it is critical to understand pre-existing or coexisting symptoms and conditions in the evaluation of PPCS.

Targeted treatments

Recent systematic reviews have advocated including vestibular, oculomotor, psychological, sleep, cervical and autonomic nervous system evaluations in the assessment in order to facilitate individualised and targeted management of PPCS.⁷⁷

Exercise for persistent postconcussive symptoms

Activity and exercise that do not exacerbate symptoms are recommended for those with persistent postconcussive symptoms. A formal symptom-limited aerobic exercise programme has been shown to be safe and improve resolution of persistent symptoms compared with controls and should be considered in athletes with symptoms lasting longer than expected.^{78–80} The Buffalo Concussion Exercise Treatment Protocol, a progressive subsymptom threshold aerobic exercise programme based on systematically establishing the level of exercise tolerance on the Buffalo Concussion Treadmill Test, is the most studied controlled exercise programme.⁸¹ It is ideal for those with persistent postconcussive symptoms to be evaluated by a provider or multidisciplinary team with expertise in complicated concussion management. (C)

Physical therapy, vestibular therapy and collaborative care

Athletes with migraine/headache should be evaluated for underlying headache disorders, cervical dysfunction causing headache and other possible contributors, and treated appropriately with non-pharmacological and pharmacological treatments.⁷⁷ Vestibular therapy should focus on specific deficits identified and use an 'expose-recover' model performed by clinicians with expertise in vestibular rehabilitation.^{51,82} There is preliminary evidence that addressing cervical spine and/or vestibular dysfunction with a targeted physical therapy programme improves outcomes in those with PPCS.^{83,84} Cognitive work should be modified or limited to that which does not exacerbate symptoms.⁶⁰ In athletes with sleep disturbances following SRC, sleep hygiene should be addressed, sleep monitored and treated with non-pharmacological or pharmacological strategies.⁸⁵ Individuals experiencing psychological symptoms such as irritability, sadness and anxiety should be evaluated and offered appropriate treatment. A collaborative care model including cognitive behavioural therapy can improve outcomes in those with persistent postconcussive symptoms.⁸⁶ (C)

Return to learn

SRC can induce changes in attention, cognitive processing speed, learning, short-term memory and executive function that make learning difficult.⁸⁷ Return to learn is the process of transitioning back to the classroom following concussion using individualised academic adjustments^{87,88} (see table 4). School personnel should be informed of the injury and implement an initial school support plan without delay.⁸⁹ Many concussed athletes recover quickly enough to return to the classroom with no or very brief adjustment of academic activities, but schools should be prepared to provide additional support in the event that recovery takes longer. Athletes with persisting symptoms should be provided an individualised return to learn accommodation plan that allows for symptom-limited learning activity similar to return to physical activity protocols. Early introduction of symptom-limited physical activity is appropriate; however, return to sport training activities should follow a successful return to the classroom for student-athletes. (C)

Return to sport

Concussion-related symptoms and signs should be resolved before returning to sport. A return-to-play progression involves a gradual, stepwise increase in physical demands and sport-specific activities without return of symptoms before the final introduction of exposure to contact (see table 5). The athlete should also demonstrate psychological readiness for returning to play. The

Table 4 Return to learn

Facilitate communication and transition back to school.

- ▶ Notify school personnel after injury to prepare for return to school.
 - Obtain consent for communication between medical and school teams.
- ▶ Designate point person to monitor the student's status related to academics, recovery and coping with injury, and communicate with medical team.
 - School health professional, guidance counsellor, administrator, athletic trainer.
- ▶ Develop plan for missed assignments and exams.
- ▶ Adjust schedule to accommodate reduced or modified attendance if needed.

Classroom adjustments

- ▶ Breaks as needed during school day.
- ▶ Reduce inclass assignments and homework.
- ▶ Allow increased time for completion of assignments and testing.
- ▶ Delay exams until student is adequately prepared and symptoms do not interfere with testing.
- ▶ Allow testing in a separate, distraction-free environment.
- ▶ Modify due dates or requirements for major projects.
- ▶ Provide preprinted notes or allow peer notetaker.
- ▶ Avoid high-risk or strenuous physical activity.

School environment adjustments

- ▶ Allow use of headphones/ear plugs to reduce noise sensitivity.
- ▶ Allow use of sunglasses/hat to reduce light sensitivity.
- ▶ Limit use of electronic screens or adjust screen settings, including font size, as needed.
- ▶ Allow student to leave class early to avoid crowded hallways.
- ▶ Avoid busy, crowded or noisy environments—music room, hallways, lunch room, vocational classes, assemblies.

Clinicians should individualise adjustments based on patient-specific symptoms, symptom severity, academic demands, as well as pre-existing conditions, such as mood disorder, learning disability or attention deficit/hyperactivity disorder.^{87 88}

Athletes with complicated or prolonged recovery may require a multidisciplinary team with specific expertise across the scope of concussion management.

return-to-sport progression is individualised and is a function of the injury, the athlete's age, prior SRC and level of play, and the ability to provide close supervision during the return to activity. The return-to-sport progression presented by the CISG is widely accepted but empiric, without evidence to support either the progression sequence or the time spent in each stage. In general, for young athletes, each stage of the progression should be at least 24 hours without return of symptoms before progressing to the next stage. (C)

Return to driving

In addition to return to learning and sporting environments, older athletes may need to return to driving, where subtle deficits could compromise safety. Most sports medicine physicians do not counsel athletes with SRC about driving.⁹⁰ Driving is a complex process involving coordination of cognitive, visual and motor skills, as well as concentration, attention, visual perception, insight and memory, which can all be affected by SRC.⁹⁰ Little is known about the risk of driving after SRC, but preliminary data suggest some impairment exists when patients with concussion report they are asymptomatic.⁹¹ Currently, no widely

accepted return to driving protocols exist; however, in athletes who drive, discussing the potential risks and harms is appropriate. (C)

RISKS RELATED TO CONCUSSION

Short and long-term risks of concussion are an area of growing concern.

Short-term risks of continued exposure after concussion or premature return to play

Continuing to play immediately following a concussion is a risk for increased symptom burden, worsening of the injury and prolonged recovery.^{92–95} Athletes who return to sport prior to full recovery are at increased risk of repeat concussion.⁹⁶ Some research has demonstrated that athletes who return to sport after SRC following standard return to sport protocols had an increased rate of musculoskeletal injury.^{97 98} The 'Second Impact Syndrome' is both rare and controversial. It is considered by some to be a potentially life-threatening complication of reinjury during the initial postinjury time period that is not fully understood and appears primarily limited to paediatric and adolescent athletes.⁹⁹ (C)

Long-term risks after concussion

Mental health problems and depression

Sport and exercise are protective against depression.¹⁰⁰ Most studies examining the relationship of contact sports to mental health problems or depression later in life have low methodological quality, high risk of bias or both.^{101–103} Several studies have reported that NFL and college football athletes with a history of concussion are more likely to experience depression, although the risk of mental health issues, including suicide, among former NFL players is lower than age-matched controls.^{101–103} Former high school football players show no difference in cognitive function testing and have lower depression scores when compared with non-contact sport controls.¹⁰⁴ Mental health issues are common, multifactorial and often present independent of participation in contact or collision sport. Longitudinal research on contact sport athletes that addresses multiple variables is needed to understand the long-term risks. (C)

Table 5 Return to sport

Stage	Description	Objective
1	Symptom-limited activity	Reintroduction of normal activities of daily living. Symptoms should not worsen with activity.
2	Light aerobic exercise	Walking, stationary biking, controlled activities that increase heart rate.
3	Sport-specific exercise	Running, skating or other sport-specific aerobic exercise avoiding risk of head impact.
4	Non-contact training drills	Sport-specific, non-contact training drills that involve increased coordination and thinking. Progressive introduction of resistance training.
5	Full contact practice	Return to normal training activities. Assess psychological readiness.
6	Return to sport	

Return-to-sport progressions should be individualised based on the injury, athlete's age, history and level of play, and the ability to provide close supervision during the return to activity, and progressions may vary between athletes. Each stage is generally 24 hours without return of concussion symptoms. Consider written clearance from a healthcare professional before return to sport as directed by local laws and regulations.³

Chronic traumatic encephalopathy

Chronic traumatic encephalopathy (CTE) and other neurodegenerative diseases have been described in former athletes with a history of concussion or repetitive head impact exposure, typically accompanied by behavioural change. The incidence and prevalence of CTE in the general population, in former athletes, or in former athletes with a history of concussion or repetitive head impact exposure, are unknown. A cause and effect relationship between postmortem CTE changes and antemortem behavioural and cognitive manifestations has not been demonstrated, and asymptomatic players have had confirmed CTE pathology at autopsy.^{105 106} It is also unknown if CTE is a progressive disease, and whether tau deposition is the cause of CTE or a byproduct or marker of a disease.¹⁰⁷ (C)

The expression of CTE-associated symptoms may be related to impact load and type, duration of career, underlying genetic factors, or other lifestyle behaviours including alcohol, drug and anabolic steroid use, general health, psychiatric disease, and other factors. Some retrospective studies have reported increased risk of neurodegenerative disease in former professional football players; however, former high school football players do not show a higher prevalence of neurodegenerative disease when compared with non-football peers.^{108 109} The most widely described risk factor to date is extensive exposure to *both* multiple concussions and repetitive head impacts, but the degree of necessary exposure is likely specific to the individual and subject to multiple modifying risk factors.¹¹⁰ Athletes and former athletes who present with neuropsychiatric symptoms and signs that have been ascribed to CTE should be evaluated for potentially treatable comorbid conditions that share symptoms, and not be assumed to have CTE.¹¹¹ (C)

Repetitive head impacts

Subconcussive or non-concussive head impacts have been discussed as an entity apart from concussion history that may create risk of long-term neurological sequelae. Subconcussive impacts are defined as transfer of mechanical energy to the brain causing presumed axonal or neuronal injury in the absence of clinical signs or symptoms.¹¹² It is unclear if a biomechanical threshold or other factors lead to injury or if this entity qualifies as injury since it does not seem to be associated with neuropsychological changes.¹¹³ Although subconcussive impacts have been associated with CTE, the short-term and long-term effects of repetitive head impacts, similar to SRC, cannot be accurately characterised using current technology. Future research will depend on developing technologies that can assess brain changes following repetitive asymptomatic head trauma in living subjects. (C)

DISQUALIFICATION FROM SPORT

There are no evidence-based guidelines for disqualifying or retiring an athlete from sport after concussion; therefore, each athlete should be carefully and individually assessed to determine the safety and potential long-term health consequences of continued participation. There is no 'set' number of concussions or repetitive head impact exposures that should force retirement from a season or from sport, and it is likely that athletes with higher numbers of diagnosed concussions will be seen in clinical settings as the recognition and awareness of concussion are improved. (C)

Considerations for retirement from sport include the length of concussion recovery (progressively longer time intervals for symptom resolution), patterns of developing concussion with less force or increasing severity of concussions, as well as the athlete's readiness or apprehension regarding return to sport.

Additional contraindications for continued participation may include behavioural changes, post-traumatic seizures, persistent neurological deficit or imaging findings suggesting additional/other pathology. Individual and family tolerance of risk and perception of the benefit of sport participation (eg, personal identity, financial motivation) should be considered and explored in a process of shared decision making.¹¹⁴ (C)

PREVENTION

Prevention of SRC is ultimately more effective in reducing the burden of this condition than any treatment, and while primary prevention of all SRC is not possible measures to decrease the number and severity of concussions are of value. Rule changes, enforcement of existing rules, technique changes, neck strengthening and equipment modifications have been the primary focus of prevention. There is moderate evidence that delaying the introduction of body checking in youth hockey reduces concussion rates.^{115–117} The effectiveness of rule changes in youth soccer and football to reduce concussion incidence is not clear; however, there is initial evidence that practice modification and changes in tackling technique may reduce injury.^{118 119} There is conflicting evidence regarding mouthguards and concussion reduction, and mouthguards should primarily be used for preventing dental trauma.¹¹⁷ Helmets prevent skull trauma and intracranial bleeding, but their protective effects for concussion are less pronounced. Some football helmet designs have improved the ability to absorb force, but it is unknown if this will reduce concussion incidence. Studies of headgear in other sports have produced mixed results. Player behaviour can change when athletes wear new or 'improved' protective equipment, encouraging a more aggressive style of play, potentially increasing the risk for injury. (B)

FUTURE RESEARCH DIRECTIONS

The panel identified these key areas for further study:

1. High-quality epidemiological studies in younger athletes, recreational activities, non-traditional sports and non-school sponsored team sports (select, recreational) should be considered.
2. Continued studies of high school, college and professional athletes to better understand concussion rates, repetitive head impact exposure, mechanisms, recovery patterns, risk factors and the success of specific intervention and prevention strategies.
3. Research regarding objective tests, including neuroimaging and fluid biomarkers, to determine their diagnostic and prognostic utility over and above current clinical assessment methods.
4. Research regarding specific factors or modifiers that are associated with prolonged recovery.
5. Investigation into the utility of clinical profiles/concussion domains for diagnosis, prognosis and treatment.
6. Research on the role, if any, of nutraceuticals in the prevention and treatment of acute concussion and for those with prolonged symptoms.
7. The role of aerobic exercise, physical therapy (treatment of associated injuries such as cervical and vestibular abnormalities) and psychological therapy in the treatment of SRC.
8. Advanced studies to increase understanding of neurobiological effects and recovery after SRC.
9. Development of evidence-based return-to-learn and return-to-sport paradigms.
10. Exploration of the potential long-term effects of SRC and repetitive subconcussive impacts on neurological health via prospective longitudinal studies and laboratory research.

11. The role of genetic susceptibility to acute and chronic effects of SRC and subconcussive impacts.
12. Further development and implementation of primary and secondary prevention measures.

CONCLUSION

Sport related concussion is a complex, heterogeneous brain injury that typically resolves clinically in 1–4 weeks. The diagnosis of concussion is challenging as it relies on self-reported symptoms that can be caused by other common conditions and there are no readily available objective diagnostic tests to confirm the diagnosis. Sports medicine physicians and others who diagnose concussion should be familiar with the psychometric properties of the sideline and office assessment tools they are using. After a brief period of rest, acutely concussed patients can be encouraged to gradually and progressively increase physical and cognitive activity while staying below their symptom-exacerbation thresholds. In cases of prolonged symptoms, a multidisciplinary team experienced in the diagnosis and treatment of concussion should be considered. Further research is necessary to better understand the potential long-term effects from concussions and repetitive subconcussive impacts, as well as incidence, prevalence and modifiable risk factors. There are many beneficial aspects to participation in sport and exercise that should be balanced against the concern for concussion. The AMSSM supports continued research in the area of SRC to enhance safe participation in sport.

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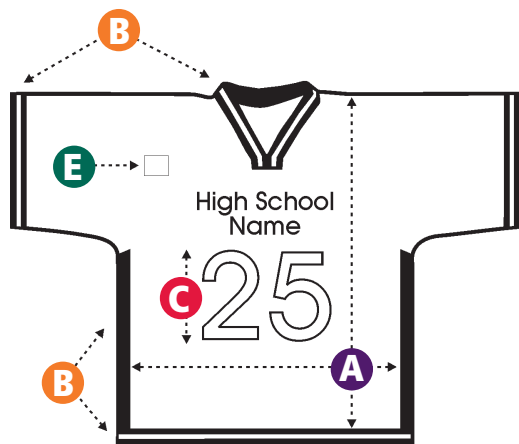
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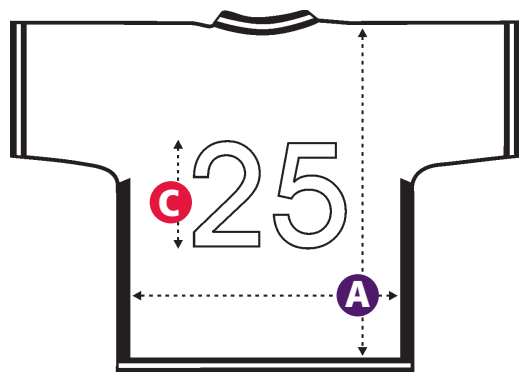
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NFHS BOYS LACROSSE UNIFORMS

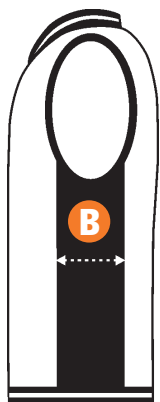
Front View



Back View



Side View



A JERSEY COLOR

1. Jerseys shall be of a **single, solid color**.
2. The jersey shall completely cover the shoulder pads.
3. Jerseys shall be of contrasting colors for opposing teams. The home team shall wear light jerseys and the visiting team shall wear its dark-color jerseys. The visiting team is responsible for avoidance of similarity of colors, but, if there is doubt, the referee may require the home team to change jerseys.

B UNIFORM TRIM

1. Collar, cuffs and waistband may be of contrasting colors, but not more than **2 inches wide**.
2. Side inserts (no more than armpit to waistband) may be of contrasting color(s), but no more than **3 inches wide**.
3. Contrasting colored piping not to exceed **1/8-inch wide** is allowed.

C NUMBERS

1. Numbers shall be centered vertically and horizontally and at least **8 inches** tall on the front and at least **12 inches** tall on the back.
2. Numbers may contain contrasting color trim(s) not to exceed **2 inches** (the number shall contrast with the body of the jersey).
3. Duplicate numbers on jerseys shall not be permitted on the same team.

D UNIFORM SHORTS

1. All players on the same team shall wear uniform shorts of the same dominant color.

E MANUFACTURER'S LOGO INFORMATION

1. A visible manufacturer's logo/trademark may not exceed **2¼ square inches** and **2¼ inches** in any direction on the jersey and/or pant/short. Beginning in 2010, no more than one manufacturer's logo/trademark or reference on the outside of each item. (The same size restriction shall apply to either the manufacturer's logo/trademark or reference).

NOTE: An American flag, not to exceed 2 by 3 inches, and either a commemorative or a memorial patch, not to exceed 4 square inches and with written state association approval, may be worn on the jersey provided neither the flag, nor the patch, interferes with the visibility of the number.

National Federation of State
High School Associations



According to notes in the 2019 rule book (Page 19):

“Beginning in the 2017-18 school year, double-zero, 01, 02, 03 etc. are not legal numbers.”

Beginning January 1, 2022, jerseys shall be of contrasting colors for opposing teams. The home team shall wear light jerseys and the visiting team shall wear its dark-color jerseys. The visiting team is responsible for avoidance of similarity of colors, but, if there is doubt, the referee may require the home team to change jerseys.”

“Beginning in 2022, the home team will be required to wear white jerseys, and the away team will be required to wear non-white jerseys.”

“Beginning January 1, 2021, a goalkeeper chest protector designed for lacrosse that incorporates the NOCSAE ND200 at the time of manufacturer shall be used by all goalkeepers.”

SCHOLAR/ATHLETE TEAM AWARD PROGRAM



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The NYSPHSAA Scholar/Athlete Team Award Program continues to be filed electronically. Electronic filing enables the NYSPHSAA to process the applications and send the awards in a timely fashion.

To begin the application process, go to:

1. www.nysphsaa.org
2. Programs
3. Scholar/Athlete Team Award - Application Form

Before you can begin the application, the site will prompt you for your school's "SED Code." (This is the same code you use to file your BEDS form and Sports Participation Survey electronically.) Then follow the online instructions.

Before "submitting" the form electronically, you are advised to print a hard copy for your reference and files. This is very important since you will not receive a hard copy of the application with your awards. It also serves as proof of submission in the event a transmission error occurs.

If you need to revise your application, go back into the form the same way you did originally. The application information is retained and you will only need to make your revision and resubmit. The application will then come in as an update.

For questions and/or help using this system of filing, please contact Rosalind at (518)690-0771, 8:00am -2:30pm.

DEADLINE DATES

<i>Fall:</i>	December 3, 2010	(lates until 12/18)
<i>Winter:</i>	March 4, 2011	(lates until 3/19)
<i>Spring:</i>	May 20, 2011	(lates until 6/4)

REMEMBER:

1. Weighted grades are NOT allowed.
2. Print a copy for your records. You will not receive a hard copy with your awards.
3. Late applications (received up to 15 days after the deadline date) will not be listed in the final standings.
4. DO NOT mail a hard copy of the application.

Computing the SCHOLAR/ATHLETE TEAM Average

STEP ONE:

Choose the sport - After you choose a sport, a form will open showing that sport and the required number of student-athletes for that sport. Listed below are the varsity sports eligible for the NYSPHSAA, Inc. Scholar/Athlete Team Award and the number of varsity team members required:

Badminton	B - 8 , G - 12		
Baseball/Softball	11	Lacrosse (B&G)	11
Basketball (B&G)	7	Rifle	7
Bowling (B&G)	7	Skiing (B&G)	7
Cross Country (B&G)	7	Soccer (B&G)	12
Fencing	7	Swimming (B&G)	11
Field Hockey	12	Tennis (B&G)	9
Football	12	Indoor Track (B&G)	12
Golf (B&G)	7	Outdoor Track (B&G)	12
Gymnastics	B - 8, G - 7	Volleyball (B&G)	8
Ice Hockey	8	Wrestling	10

NOTE: If you have MORE than the required number, see Step 4 - Additional Team Members.
If you have LESS than the required number, see Step 5 - Small Team Size.

STEP TWO:

Fill out the AD's name/address portion of this form correctly. A mailing label is produced from this information and your awards will be sent to that address.

STEP THREE:

1. Every class that is given a grade needs to be included. Pass/Fail subjects are not included. If a letter grade is given, convert to number grade.
2. List the required number of athletes by name, grade and report card grades earned during the Sports Season marking period(s). Round to the nearest thousandth.
e.g. 92.1258 = 92.126 91.6742 = 91.674

	FALL	WINTER	SPRING
12 week marking period, use:	1st	2nd	3rd
5 or 6 week marking period, use:	1st	average of 2 & 3	average of 4 & 5

3. If letter grades are reported, convert to number grades as follows:

A+ = 100	B+ = 88	C+ = 78	D+ = 68
A = 95	B = 85	C = 75	D = 65
A- = 92	B- = 82	C- = 72	D-/E/F = 0

DO NOT USE WEIGHTED GRADES when computing the team's composite grade average.

STEP FOUR - Additional Team Members

Additional varsity team members, beyond the required number, will be recognized provided their sport season report card averages are 90.000% or greater, individually.

NOTE: These gpa's do not compute into the team's total average.

STEP FIVE - SMALL TEAM SIZE

Teams with less than the required number may apply for the S/A Team Award provided:

1. 100% of the roster is used to compute the team average. Type that number in the space provided on the application form.
2. No team with less than five (5) varsity players may apply.
3. Read the "small team size statement" and check verification box.

EXAMPLE: A tennis team requires nine (9) as shown above. If a tennis team has 5 varsity players, the team average of the 5 players must be 90.000% (or higher). If the team has 6 varsity players, the team average of all 6 must be 90.000% (or higher). If the team has 4 varsity players, the team does not qualify.

STEP SIX:

Check the box to verify that you have read and understood the verification statement and hit the SUBMIT button. The next window will give a message that your application was successfully submitted and will ask if you'd like to submit another sport. If you DO NOT receive this window your application was not successfully submitted. To revise an application, go back into the form - it retains your previously inputted information - make the change(s) and hit the SUBMIT button again.

Nomination Form Example

STUDENT NAME (First, Last)	Grade (7-12)	REPORT CARD AVERAGE
1 - Chad (Colleen)	9	93.755
2 - Joe (Judy)	8	87.125
3 - Sam (Sue)	12	89.667
4 - Bill (Barb)	10	98.022
5 - Tim (Tammy)	11	96.333
6 - Carl (Carol)	7	89.100
7 - Bob (Brenda)	12	94.425
TOTAL		645.427
TEAM COMPOSITE GRADE AVERAGE (90% OR ABOVE)		92.204
ADDITIONAL TEAM MEMBERS (MUST HAVE GPA OF 90% OR HIGHER):		
1. Donna (Dave)	10	91.290
2. Jim (Lisa)	9	90.345

1 - Chad (Colleen)	9	93.755
2 - Joe (Judy)	8	87.125
3 - Sam (Sue)	12	89.667
4 - Bill (Barb)	10	98.022
5 - Tim (Tammy)	11	96.333
6 - Carl (Carol)	7	89.100
7 - Bob (Brenda)	12	94.425

⇒ See STEP 3

TOTAL 645.427

TEAM COMPOSITE GRADE AVERAGE (90% OR ABOVE) 92.204

ADDITIONAL TEAM MEMBERS (MUST HAVE GPA OF 90% OR HIGHER): ⇒ See STEP 4

1. Donna (Dave)	10	91.290
2. Jim (Lisa)	9	90.345

WHICH IS YOUR GOAL?

1. If it is to be declared the S/A State Champion, you would list your student-athletes with the highest gpa's first, and any additional members, with a 90% or higher, as additional team members. (i.e. "play the first string")
2. If it is to include as many student-athletes on the team as possible, you would follow the above example. This shows the averages below a 90% listed in the team's composite gpa, and the lowest 90%'s as additional team members. (i.e. "play the bench")

ADDITIONAL INFORMATION FOR NOMINATION FORM

- 1) This is a **VARSITY** team award. A student must have played in one varsity competition to be eligible. Managers, scorekeepers, etc. are not eligible.
 - 2) The minimum **Team** Grade Average to apply is **90.000%**. There is no minimum student GPA unless they are to be used as Additional Team Members, which requires a 90% or higher.
 - 3) All grade averages should be listed to three (3) decimal places rounded off to the nearest thousandth. **DO NOT USE WEIGHTED GRADES.**
 - 4) Co-ed teams are not recognized. Mixed teams are eligible and must meet the Regulations of the NYS Commissioner of Education for Mixed Competition.
 - 5) **State Champion** Scholar/Athlete Teams will be declared in those sports having 4 or more programs in 6 or more sections based on the highest team composite grade average provided 10 or more teams qualify in that sport. Declarations are made in conjunction with a sport's NYSPHSAA designated championship tournament season. Verification that all standards were met will be obtained prior to this declaration.
 - 6) The **Head Coach** of each sport nominated and the **District Athletic Director** should review the names of the team members listed on the nomination form. The **High School Principal** should verify the accuracy of the grade average of each student listed.
 - 7) Deadline dates for submitting Scholar/Athlete Team Award nominations are:
 FALL SPORTS: 1st **Friday** of December
 WINTER SPORTS: 1st **Friday** of March
 SPRING SPORTS: 3rd **Friday** of May
- NOTE: Late nominations will be accepted up to 15 days beyond the deadline date, but are not eligible for final standings.**
- 8) Any local press release/photos for Scholar/Athlete teams should be sent to the NYSPHSAA.
 - 9) For questions relating to any aspect of the NYSPHSAA Scholar/Athlete Team Award Program contact the NYSPHSAA, Inc. at 518-690-0771.

Boys Lacrosse Rules Changes - 2019

By on December 06, 2018

[lacrosse-boys](#)

1-6-2: Measuring the length of the head at the front (face) of the head.

1-7-1: The pocket/net must be completely attached to the head and the side walls, leaving no gaps large enough for a ball to pass through.

1-9-1j: Beginning January 1, 2021, a goalkeeper chest protector designed for lacrosse that incorporates the NOCSAE ND200 at the time of manufacture shall be used by all goalkeepers.

4-5-9: A shot is considered a ball propelled toward the goal by an offensive player with the intent of scoring a goal. A shot can only be made when the ball is parallel to or above the goal line extended. Additionally, it can be either thrown from a crosse, kicked, or otherwise physically directed.

4-9-3: If any of the following occur between the end of the period and the shot entering the goal, the goal will be disallowed:

- a. The ball makes contact with any member of the attacking team or his equipment;
- b. The ball is touched by a player of either team other than the defending goalkeeper after hitting the goalkeeper or his equipment, goal posts or crossbar.

4-14-3: If the ball does not touch the center line or something over the center line, no infraction has occurred. A defensive player may reach over the center line with his crosse and bat the ball to keep it in his team's offensive half and thus prevent an over-and-back violation. However, he may NOT reach over the center line and bat the ball with his foot or any other part of his body excluding his gloved hand wrapped around his crosse. If he does so, it shall be a turnover.

5-3 PENALTY: Penalty for violation of Article 5 is a two- or three- minute, non-releasable foul, at the official's discretion. An excessively violent violation of this rule may result in an ejection.

5-4-4: A player shall not initiate a body check legally but slides up into or follows through to an opponent's head or neck.

5-4-5: A player shall not body-check a player in a defenseless position. This includes but is not limited to: (a) body-checking a player from his "blind side;" (b) body checking a player who has his head down in an attempt to play a loose ball; and (c) body-checking a player whose head is turned away to receive a pass, even if that player turns toward the contact immediately before the body check.

5-4-6: A player shall not initiate targeting, which is intentionally taking aim at the head/neck of an opponent for the purpose of making violent contact. This could include a check with the crown of the helmet

(spearing) that targets the head or neck of an opponent. **PENALTY: Three-minute, non-releasable foul. An excessively violent violation of this rule may result in an ejection.**

5-4-7: A player shall not initiate targeting that intentionally takes aim at a player in a defenseless position. **PENALTY: Three-minute, non-releasable foul. An excessively violent violation of this rule may result in an ejection.**

5-10e: A coach who is on the field and obstructs play.

5-12-1 PENALTY: Three-minute non-releasable penalty for a player, substitute or non-playing team member or a one-minute non-releasable penalty for a coach and ejection for the remainder of the game. The ejected coach shall be removed from the premises (bench and field area). The ejected player, substitute or non-playing team member shall be removed from the premises if there is authorized school personnel present to supervise the ejected student. If no authorized school personnel is available, the student shall be confined to the bench area. The sponsoring authority is responsible for notifying the appropriate school of the ejection.

6-3-2a: A player shall not use the portion of the handle that is between his hands to hold an opponent, when his hands are more than shoulder-width apart.

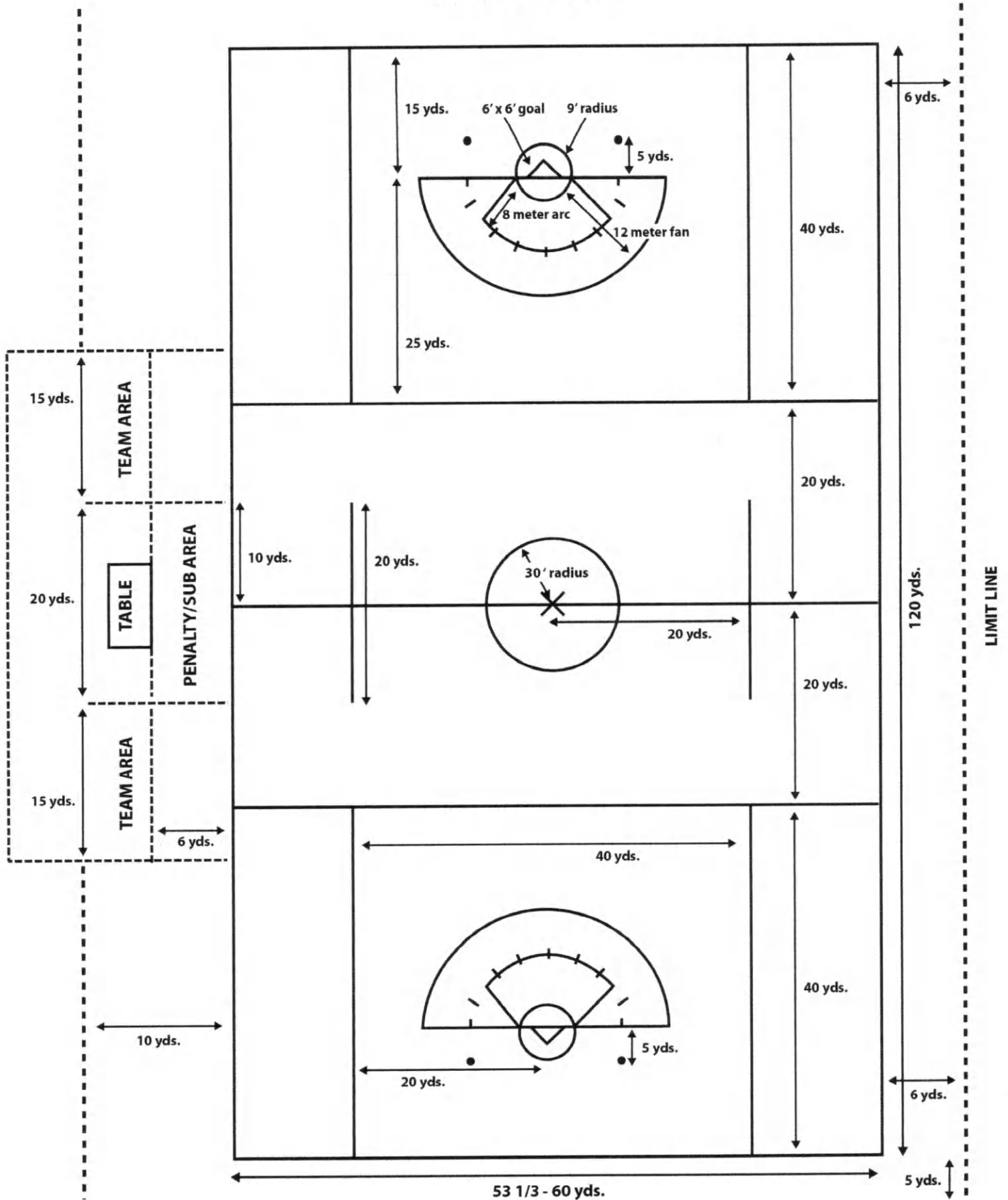
6-3-3e: Holding is permitted if a player uses the portion of the handle that is between his hands, which are no more than shoulder-width apart, to hold an opponent on the torso with no more than equal pressure and no thrusting motion.

6-5-2b(4): A player shall not exchange his crosse with that of a teammate during live play while the ball is in either crosse.

6-11-2: A player in possession of the ball with both hands on his crosse shall not use his hand or arm to push the body of the player applying the check. NOTE: Illegal body checks (5-3), "spearing" (5-4-3) and unnecessary roughness (5-9-3 SITUATION E) shall be strictly enforced as personal fouls.

BOYS' AND GIRLS' UNIFIED FIELD MARKINGS

(120 YARDS)



Boys Lacrosse Points of Emphasis - 2019

By NFHS on November 28, 2018

[*lacrosse-boys*](#)

Stalling

A 2018 questionnaire completed by both coaches and officials indicated a concern regarding the interpretation of "stalling." A team that is stalling does not make an effort to attack the goal or generate shots. An offense that is stalling passes on clear shooting opportunities, does not actively work to create scoring opportunities and "holds the ball behind GLE for excessive periods of time." When considering a "get it in, keep it in" call, officials should consider score, time left, style of defense employed (zone or man). If in the opinion of the officials the offense is not actively seeking scoring opportunities, a stall warning should be applied.

Targeting

When a player intentionally takes aim at an opponent's head or neck or a defenseless player, the offending player will be penalized with a three-minute, non-releasable foul and may result in an ejection.

Holding

A player may employ the handle of his crosse (between his hands) to legally hold an opponent if his hands are no more than shoulder-width apart, employs "equal pressure" and does not employ a thrusting motion.

Warding

A player may not use his crosse or any part of his body to push or control the direction of an opponent's crosse or body.



Memorandum

To: Boys Lacrosse Administrators
From: James Weaver
Subject: 2019 Rule Corrections
Date: January 28, 2019

The purpose of this memo is to transmit corrections to the 2019 NFHS Boys Lacrosse rules book. These corrections should be applied to the interpretations of the 2019 rules. The following corrections can also be found on the NFHS Boys Lacrosse webpage.

Penalty in 5-3, page 59	Remove penalty in 5-3, editorial error.
Situations 5.4.1a, page 60	Remove situation due to duplication.
Situations 5.4.1b, page 60	Remove situation due to duplication.
Situation 5.5b, page 61	Change situation to 6 inches; editorial error with the old 6 ½ inch measurement
Situation 5.9.3a-d page 64 and 65	Clarification: Shall be a three-minute non-releasable if targeting a defenseless player.
Situation 6.2.1e, page 68	A second flag should create an immediate whistle; correction due to rule change
Situation 6.5.2a, page 73	Clarification: Upon a second foul the penalty shall be a personal foul
Rule Interpretation 6-10 page 77	During the last two minutes a shot that hits the goalie or pipes does not remove the stall warning.
Situation 7.2j and k, page 83	Play shall end after the second flag
Situation 7.6.4d, page 87	Play shall end after the second flag
Situation 7.3b, page 84	Ruling change: The second penalty on team B results in the slow whistle being stopped by the official
POE Warding P. 95	Should read: A player may not use his crosse or any part of his body to push or control the direction of an opponent's crosse or body.

JW:arh

Boys Lacrosse NFHS Scrimmage

Rules

Scrimmages: A lacrosse scrimmage must have modified time periods and include *one or more* of the following:

1. Alternate possessions.
2. Start the scrimmage with either a Draw (girls) or a Face-Off (boys)
3. Include the following games situations:
 - a. Face-Off/Draw – Boys/Girls
 - b. Clears and Rides – Boys/Girls
 - c. Extra Man and Man – Down – Boys/Girls
 - d. Fast Breaks – Boys/Girls

**** IT IS PERMISSABLE TO DRILL ONLY WITH ANOTHER TEAM BEFORE SCRIMMAGE DATE. ONLY STICK WORK DRILLS CAN BE DONE. Absolutely No Offense/Defense; Only Individual Drills Are Allowed.**

CHIEF BENCH OFFICIAL RESPONSIBILITIES

ART. 1 . . . When assigned by an assigning authority, an official acting as the chief bench official shall have supervision over the timer's table and complete jurisdiction over the timer, scorer, coaches area and both benches. The chief bench official (CBO) shall wear the same uniform as the other officials and shall have a whistle, flag and horn. The horn shall be provided by the home team.

ART. 2 . . . The CBO shall supervise and have complete jurisdiction over the timekeeper, penalty timekeepers, scorers, coaches, substitutes and any other persons within the bench areas, the substitution area and the penalty box.

The assigned chief bench official also shall be empowered to call the following:

- 1. Violations of the coaches-, bench- and table-area rules.**
- 2. Any unsportsmanlike acts that occur within the coaches, bench and table areas.**
- 3. Any illegal-crosse exchange.**
- 4. A player who has been substituted for not leaving the field of play at the table area or bench area.**
- 5. Offside.**
- 6. Too many or too few players on the field.**
- 7. Delayed substitutions.**
- 8. Time-outs.**
- 9. Count crosses when requested.**
- 10. Violations related to substitution.**
- 11. Relay penalty to table area**

If the CBO becomes aware of any of the above infringements, he shall, depending on the circumstances, either throw a signal flag or blow his whistle, and apply the appropriate penalty. Additionally, when the CBO becomes aware of a player committing an act of flagrant misconduct, then, if the act is away from the current area of play and is unlikely to have been seen by the on-field officials, the CBO shall either throw a signal flag or blow his whistle, as appropriate. When a whistle has stopped the play, the CBO shall inform the referee of what has happened and the CBO shall make the appropriate call.

CBO MECHANICS

Work in a triangle motion moving from deep box opposite offense to Mid line on transition watching for off sides (communicate to trail official) then to opposite deep viewing new offense. Stay one yard above the team team restraining line so that you can see players that are the above the "Get Back "area or actually in the substitution area unless eminent substitution. Refrain from just standing at the midline during settled offensive play. Be aware of illegal contact of players exiting and entering the field. Make sure the players entering the field back away from the exiting players. Screen off any coach that is entering the area beyond the coaches line / substitution box. Deflect coaches comments..make the unsportsmanlike call if absolutely necessary. Field officials need to quickly and firmly support the CBO 's call. Keep your eye on the coaches during Time Outs especially when bringing water or conversing with on field officials

Section V

Medical Waiver Request to the Representation Rule

Name of Student Athlete _____

School _____

Sport _____

Grade _____

1) Date of Injury _____

2) Dates of contests the student athlete was ineligible to participate:

3) Dates of contests the student athlete represented their school in contests:

1) _____

4) _____

2) _____

5) _____

3) _____

4) Please attach the medical documentation for the following:

1) Description of injury sustained or medical condition that prevented participation

2) When the student athlete was withheld from participation - Date _____

3) When the student athlete was cleared for full participation - Date _____

#25 Representation: To be eligible for sectional, intersectional or state competition, a team must have competed in six (6) school scheduled contests which occurred on six (6) different dates during the season.

Team Sports: For the sports of baseball, basketball, field hockey, ice hockey, lacrosse, soccer, softball, and volleyball an individual is eligible for the team if he/she had been an eligible participant on a team in that sport in that school for a minimum of six (6) scheduled contests during the regular season. For football, a student must be an eligible participant for a minimum of three (3) contests. For competitive cheer, a student must be an eligible participant for a minimum of two (2) competitions.

Team/Individual and Individual Sports: For the sports or archery, badminton, bowling, cross country, fencing, golf, gymnastics, rifle, skiing, swimming, tennis, outdoor track, winter track and wrestling an individual must also have represented their school in six (6) scheduled contests during the season to be eligible. These required contests must occur on six (6) different dates and must be conducted prior to the conclusion of the team’s regular schedule.

School districts may submit a written request to the Section for adjustment of contests for an individual participant based on medical documentation that confirms the individual was not able to participate in the required number of contests.

Athletic Director Signature: _____ Date: _____

Please submit to: Kathy Hoyt, Executive Director of Section V Athletics khoyt@wflboces.org

HEALTH EXAMINATION: Regulation of the Commissioner of Education:

A student who may engage in interschool competition shall receive an adequate health examination and health history update when required and may not practice or participate without the approval of the school medical officer. NOTE: Physicals for participation in school sports may be scheduled at any time during the calendar year.

The results of the physical shall be valid for a period of 12 months during the last day of the month in which the physical was conducted. Unless the medical examination is conducted within 30 days of the start of a season, a health history update is required. Any pupil, whose safe participation is in question as a result of the health history interview, or injury, or prolonged absence, must be pre-qualified by the school physician prior to participation.

If the 12-month period for the physical expires during a sports season, participants may complete the season as long as a health history was conducted prior to the season. For example, a physical conducted on August 1 would be valid through August 31. If a student plays beyond August (ex. football), the student may complete that sports season as long as an interval health history was conducted before the start of the season. Immediately following the last sanctioned tournament competition for that season, a new physical is required if the student is going to play another sport. Sport season includes tryouts.

NOTE: The Handbook Committee recommends that each incidence of prolonged absence should be reviewed individually by the coach and the athletic director, consulting with the school physician when necessary, and a reasonable amount of practice time and playing time be established based on the athlete's readiness for safe return to competition.

Received from Kathy Hoyt, "Friday Five".



Section V
Boys Lacrosse
Mission Statement

The primary goal of the Section V Boy's Lacrosse Program is to develop student-athletes of character and integrity who will serve as positive members of their individual school community and the greater society.

We believe that the following objectives will best enhance the Section's mission.

. We will practice positive leadership and display the courage necessary to advocate just causes in the face of public and social pressures.

. We will hold ourselves accountable and liable for our thoughts, feelings, and actions on and off the field play.

. We will provide opportunities to promote personal excellence (self-discipline, teamwork, leadership, and fair play).

. We will instill the passion, pride and commitment required to play lacrosse at the highest levels.

. We will empower our players to exhibit the utmost character, respect, integrity, and sportsmanship both on and off the lacrosse field.

Through positive coaching by highly qualified coaching staffs through out Section V, each student athlete will be taught fundamentals, techniques, skills and to respect their opponent.

The Mission of Section V Boy's Lacrosse is to teach and play lacrosse with passion, with purpose, with respect for the sport and with pride.



Section V
Boys Lacrosse
Spectator Courtesy Code of Conduct

It is our belief that good sportsmanship on the part of spectators at Section V Lacrosse contests is as important as good sportsmanship on the part of the student-athletes.

The following guidelines for spectator conduct are expected as a means of continuing and strengthening the ties that exist between competing schools.

- Spectators are encouraged to be actively involved in positive behaviors that promote enthusiastic support for our interscholastic teams. Spectators should cheer for their teams rather than against others and recognize good play on either side of the ball. Discourteous or unsportsmanlike behaviors are unacceptable.
- No spectator should be involved in any of the following actions:
 - No one shall throw any object on to the playing surface. This action is equally dangerous to your team, other participants and spectators.
 - No one shall use unacceptable language when cheering or engage in any cheer that is demeaning to a team or an individual (players, coaches, referees, or other spectators).
 - No sound producing devices shall be used. This includes horns of any type, whistles, drums, etc.



Section V
Boys Lacrosse
Suggested Pre-Game Order of Events



- Team Warm Ups
(equipment checks with officials)
- Officials meet with captains at center field
- Officials meet with teams at their bench areas
(one official at each bench)
PA announcer reads sportsmanship statement
- National Anthem
- Starters for away team announced
- Starters for home team announced
- Starters line up at midfield - (Final statement by officials) - Shake hands
Coaches shake hands
- Game starts



**Monroe County Public School Athletic
Conference, Inc.**
www.mcpsac.org

February 15, 2011

**Taking a Position in support of Respectful Speech and Behaviors
in, at and around Interscholastic Athletic Contests**

On behalf of its member schools, the Monroe County Public School Athletic Conference, Inc. is committed to the promotion of high-spirited competition, fair play, and good sportsmanship at all interscholastic events and to the healthy communities that these qualities promote. Coaches, student-athletes, school staffs, and spectators are expected to pursue these goals in positive ways, with unqualified respect for the dignity and humanity of all people. While encouraging high-spirited engagement at athletic events, the Conference and its member schools stand firmly against any mean-spirited speech or behaviors that convey insult, intolerance, or disrespect. Slurs, taunting, ridicule, discrimination, abuse, and other such behaviors hurt individuals, poison the atmosphere of the athletic arena, and bring shame on us all.

Accordingly, the Monroe County Public School Athletic Conference, Inc. is developing a number of initiatives designed to promote a culture of respect for all people at all athletic events. Through educational programs, media, and the leadership of school administrators and coaches, the initiatives will establish and actively disseminate standards for behavior and speech at interscholastic athletic events. The programs will strengthen the understanding of all coaches, players, and spectators of what is and what is not acceptable, and will establish consequences for occasions where reasonable expectations are not met. When fully implemented, these programs will assure that incidents of abuse or disrespect do not tarnish healthy sporting events in our schools and will support essential educational elements of interscholastic athletics: the development of character, integrity, and respect for all.

“Be loud, be proud, be positive”
(Section V sportsmanship motto)



Section V – WYSC/WABO - Sportsmanship Rubric*



<u>Component/Group</u>	<u>Athletes</u>	<u>Coaches</u>	<u>Spectators</u>
<u>Cooperation</u>	<p>Be Cooperative:</p> <ul style="list-style-type: none"> ○ Be positive with my words and actions; ○ Use appropriate words without taunting or trash talking. 	<p>Be Cooperative:</p> <ul style="list-style-type: none"> ○ Be positive with my words and actions; ○ Be a positive behavior role model ○ Hold my athletes & fans to the same standards; ○ Exemplify leadership by having clear communication with players and parents. 	<p>Be Cooperative:</p> <ul style="list-style-type: none"> ○ Be a positive behavior role model ○ Refrain from taunting, trash-talking and derogatory remarks especially comments of an ethnic, religious, physicality, racial or sexual nature; ○ Remember to wait 24 hours after the game to address the coach with a concern; ○ Never confront an official at any time.
<u>Accountability</u>	<p>Be Accountable:</p> <ul style="list-style-type: none"> ○ My behavior matters for me, my family, my team, my school community. 	<p>Be Accountable:</p> <ul style="list-style-type: none"> ○ Abide by and teach the rules of the game in letter and spirit; ○ Describe and define respectful behavior. Avoid arguing, cussing, throwing objects, using gestures which demonstrate disrespect. 	<p>Be Accountable:</p> <ul style="list-style-type: none"> ○ Attending an interscholastic athletic event is a privilege; ○ Refrain from the use of any mind altering or unhealthy substance, including alcohol or tobacco products, when attending an athletic event. ○ Any pre-contest event should reflect a healthy, sporting atmosphere.
<u>Respect</u>	<p>Be Respectful:</p> <ul style="list-style-type: none"> ○ Treat all others including, coaches, athletes, officials and fans the way I want to be treated; ○ Treat officials with respect even if you disagree with their call; ○ During the playing of the National Anthem, face the flag, remove hats, stand still, and do not speak; ie. show full respect. 	<p>Be Respectful:</p> <ul style="list-style-type: none"> ○ Treat all others including, other coaches, athletes, officials and fans the way I want to be treated; ○ Treat officials with respect even if you disagree with their call; ○ During the playing of the National Anthem, face the flag, remove hats, stand still, and do not speak; ie. show full respect. 	<p>Be Respectful:</p> <ul style="list-style-type: none"> ○ Treat all others including, coaches, athletes, officials and other fans the way I want to be treated; ○ Treat officials with respect even if you disagree with their call; ○ During the playing of the National Anthem, face the flag, remove hats, stand still, and do not speak; ie. show full respect.
<u>Excellence</u>	<p>Be Excellent:</p> <ul style="list-style-type: none"> ○ Win with humility, lose with grace. Do both with dignity; ○ Always demonstrate good sportsmanship. <p><i>“Sportsmanship for me is when a person walks off a court and you really can’t tell whether he/she won or lost, when he/she carries themselves with pride either way”</i> <i>Jim Courier</i></p>	<p>Be Excellent:</p> <ul style="list-style-type: none"> ○ Win with humility, lose with grace. Do both with dignity; ○ Always demonstrate good sportsmanship; ○ Shake hands with officials and opposing coaches before and after the contest in full view of the public. 	<p>Be Excellent:</p> <ul style="list-style-type: none"> ○ Recognize and show appreciation for an outstanding play by either team; ○ Remember that the coaches and officials are people just like you and deserve to be treated with the same respect you expect; ○ Make your children proud.

“Be loud, Be Proud, Be Positive” – Section V Sportsmanship Slogan

*Above information is copied and modified from the Webster C.A.R.E.s Everywhere handout - WABO

SPRING SPORTS 2017

- **Modified “B” Field Hockey**
- **Modified “B” Boys and Girls Track & Field**
- **Modified “B” Boys Lacrosse**
- **Modified “B” Girls Lacrosse**
- **Modified “B” Softball**
- **Modified “A” Softball**
- **Modified “A & B” Baseball**
- **Modified “A” Boys Tennis**

MCPSAC, Inc.
MODIFIED ELIGIBILITY POLICY

PROGRAM "A" ELIGIBILITY

Grade: Students in 7th, 8th, or 9th grades
Age: 13, 14, or 15 years old (at the starting date)
Students can turn 16 during the season and continue to play
See #3 under Points of Clarification

PROGRAM "A" SPORTS OFFERINGS

FALL

Boys Soccer	Girls Soccer
	Girls Tennis

WINTER

Boys Basketball	Girls Basketball
------------------------	-------------------------

SPRING

Boys Baseball	Girls Softball
Boys Tennis	

PROGRAM "B" ELIGIBILITY

Grade: Students in 7th or 8th grades ONLY
Age: Up to 14 years old (at the starting date)
Students can turn 15 during the season and continue to play.
See #3 under Points of Clarification

PROGRAM "B" SPORTS OFFERINGS

FALL

Boys Football	Girls Soccer
Boys Soccer	Girls Gymnastics
Boys Cross Country	Girls Cross Country
Boys Volleyball	Girls Swimming
	Girls Volleyball

WINTER

Boys Basketball	Girls Basketball
Boys Wrestling	
Boys Swimming	

SPRING

Boys Baseball	Girls Softball
Boys Track and Field	Girls Track and Field
Boys Lacrosse	Girls Field Hockey
	Girls Lacrosse

POINTS OF CLARIFICATION:

1. Policy goes into effect September of the 1996-97 school year.
2. Any exceptions to stated level placement procedures must be determined using the Selection Classification Standards from the NYSPHSAA Handbook.
3. The Modified programs for Football (A&B) and Lacrosse (B) will follow NYSPHSAA handbook regarding age and physical maturity.

PROGRAM GOALS

It is expected that all modified athletics will be conducted in a positive environment.

Characteristics of such an environment are:

- 1. All athletes will be treated, and treat each other, in a respectful manner.*
- 2. Basic skills, fundamentals and good athletic attitudes are to be stressed above all else.*
- 3. Adult participation and supervision must be positive and supportive at all times.*
- 4. Self-discipline and teamwork must be stressed.*
- 5. Coaches must be caring and treat the athletes with equal fairness.*
- 6. Winning is kept in perspective and not over-emphasized.*
- 7. Officials and opponents must always be treated with respect.*
- 8. Parents should be oriented as to his/her proper role.*
- 9. Safety is a major concern.*
- 10. If you have had fun, you have won!!!*

Protocol at Games:

- Each team gets a minimum of 15 minutes to warm-up upon arrival on the field/court.*
- Coaches will meet prior to the game to exchange match up cards.*
- All players will review sportsmanship instructions prior to/and during every game.*
- Coaches and Players will model good sportsmanship at all times with officials, opponents, parents, and teammates/players.*
- All game officials and scores will meet with both coaches prior to starting the game to get acquainted and agree on all protocols and procedures.*
- Coaches must adhere to agree upon match-ups during the game. If a problem arises, stop the game and straighten it out. Any protest must be noted in the official scorebook at the time of the violation.*
- All games will be completed unless the time restrictions prevail.*
- The coaches will enforce good bench conduct at all times.*
- Players will line up and shake hands after every game (with coaches supervising)*
- Coaches are expected to silence unsportsmanlike conduct or rude parents (from their home school). Stop it right away!*
- All concerns must be reported to the league chairperson and your Athletic Administrator.*
- "Coaches are to use best judgment after 6:30 pm"*

MCPSAC Inc.
MODIFIED "B" BOYS LACROSSE

NYSPHSAA Inc. Modified Sports Standards

	Team and Individual
• Number of practices prior to first scrimmage	10
• Number of practices prior to first game	15
• Minimum time between contests	2 nights
• Individual limitations per day	1 game
• Team and individual maximum number of contests	12
• Time and distance limits	9/11 minute quarters

NYSPHSAA Inc. Modified Game Rules and Game Conditions

Administration:

1. Tests: Every contestant should be carefully checked to determine his readiness before being allowed to participate as for football (see above) with exception of:

Individual Skills - A thorough program of physical conditioning, running and lacrosse skills such as throwing, catching, scooping, faking and dodging should be conducted prior to permitting one to participate in live contact drills. No one should be permitted in live contact drills until ability has been proven in the individual skills. Contact drills should be conducted against equals only.

2. Equipment-

- a. All players, including the goalkeeper, shall wear all protective equipment.
- b. Properly fitted equipment of good quality is mandatory for safe participation in lacrosse.
- c. The essential protective equipment must include a lacrosse helmet with a face mask, lacrosse arm guards, lacrosse shoulder pads, lacrosse gloves, and a mouthpiece. Goalkeepers must wear a chest protector and throat protection.
- d. Only sneakers or shoes with molded soles and molded cleats are permitted in the modified program. Shoes with metal posts or spikes are not permitted in any modified sport.
- e. Face masks for lacrosse competition must have a center bar.
- f. With the exception of the goalie's stick, there shall be no rule restriction on the length of the stick in modified lacrosse if the stick falls between 40-72 inches.
- g. Modified lacrosse players are exempt from the uniform outer clothing and helmet color regulations.

Game Conditions.

See Modified Sports Standards Chart for Interschool Competition.

Scrimmage Conditions.

A Lacrosse scrimmage must have modified time periods and include *one or more* of the following:

1. Alternate possessions.
2. Start the scrimmage with either a Draw (girls) or a Face-Off (boys).
3. Include the following game situations.
 - a. Face-Off/Draws – Boys/Girls
 - b. Clears and Rides –Boys/Girls
 - c. Extra Man and Man-Down – Boys/Girls
 - d. Fast Breaks – Boys/Girls

Game Rules.

1. The length of quarters shall be 9/11 minutes.
2. Two overtime periods of 2 minutes are to be played in the event the game is a tie; and no sudden death period is to be allowed.
3. A team shall be permitted 3 time-out periods per half. The time outs cannot be accrued in the course of the game.
4. A one-arm swing with a crosse, whether contact is made or not, shall be considered a personal foul – slashing. This includes the over-the-head "Indian Check".
5. There is no such call as a "Brush" in the Modified Program. Contact between crosse and helmet is a personal foul.
6. Contact with the ball is disallowed by any offensive players when the ball is loose in the crease.
7. Body checking is allowed ONLY against a player who is in possession of the ball.
8. The ten second rule is eliminated.
9. In a 5 period lacrosse game the mercy rule shall be in effect at the end of the third period of play.

10. Substitutes are permitted whenever the ball goes out of bounds.
11. When a goalkeeper gets a penalty, the in home player will serve the penalty if a second goalkeeper is unavailable.

MCPSAA Inc. Game Formats and Game Rules

1. Playing Philosophy
 - a. Quarter 1 - Strongest Players
 - b. Quarter 2 - Developmental Players (Strongest players, regardless of position, should not play during this quarter)
 - Example- if there are 12 players on a basketball team, each player should be numbered from #1- #12, (#1 being the strongest and #12 being the weakest), # 1-5 should not play in Quarter 2.
 - c. Quarters 3 & 4 – Coaches decision based on competitiveness of the contest.
2. If the minimum number of players needed for a 4 Quarter Extended Play period is met, the number of minutes for each quarter will be increased (see above chart).
3. No player may play more than 3 quarters. Entry into each quarter rather than actual playing time shall constitute “participation” in the quarter.
4. If a player is injured during a contest, and the minimum number of participants is no longer met, the game must go back to the regulation 4 quarter time limits.
5. “Coaches are to use best judgment after 6:30 pm”

Sport	Regulation Game 4 Quarters		4 Quarter Extended Play	
	Time Limits	# of Players	Time Limits	# of Players
Basketball	7 min. quarters	5-6	9 min. quarters (quarter 1= 8 min.)	7+
Field Hockey	25 min. halves	11-14	15 min. quarters	15+
Football	10 min. quarters	16-18	12 min. quarters	19+
Boys Lacrosse	9 min. quarters	10-13	11 min. quarters	14+
Girls Lacrosse	25 min. halves	10-15	15 min. quarters	16+
Soccer	15 min. quarters	11-14	18 min. quarters	15+