

# FAQs about the CHSAA's RPI system

CHSAA has moved to a new RPI system for postseason all team sports.

Below are answers to common questions surrounding the RPI system.

Additionally, we have put together a presentation about the [myths and facts about RPI](#), specifically as it relates to scheduling.

## **What's the RPI formula? And where did it come from?**

RPI stands for Ratings Percentage Index. This [Wikipedia page](#) is a good starting point for those looking to become familiar with the formula. In short, it is a way to measure a team's strength relative to other teams, based largely on the strength of their schedules.

CHSAA first became interested in using an RPI system when searching for a way to standardize all postseason qualification processes. It was also used by the football committee in 2015 as a component to the seeding criteria, following a presentation and suggestion from community members. The RPI formula is used by both the NCAA and NAIA, among other organizations, as part of their postseason system. In August 2015, CHSAA's board of directors [mandated that all committees use RPI](#) for postseason qualification.

## **What percentages are being used in the formula?**

[Starting in 2018-19](#), the formula will be as follows for all sports:

$$\text{RPI} = (0.3 \times \text{WP}) + (0.40 \times \text{OWP}) + (0.3 \times \text{OOWP})$$

## Why use RPI instead of another type of rating system?

A major advantage to the RPI is the transparency that comes along with its accuracy. The components of the formula are known, and its results can be easily replicated.

## What data will be used in the RPI formula?

All games played in the regular season shall be counted toward the RPI calculation, with the exception of games against non-varsity opponents. Some sports use district/regional data, as well, to help with seeding their state tournaments.

## Where will be the RPI standings be published?

The official CHSAA RPI standings will be published on CHSAANow.com, specifically [here](#). It is worth noting that any RPI data published elsewhere is unofficial and should be viewed with skepticism as it may not be correct.

## How are the components of the formula specifically calculated?

- **Winning percentage (WP):** Divide the number of wins by the number of total games played. A tie is worth half a win. If a win in an individual contest gives that contest a winning percentage of 1.00, a tie would give that individual contest a winning percentage of .500 for both teams.
- **Opponents' winning percentage (OWP):** Average the winning percentages of a team's opponents. (Note: This is not calculated

via the combined record of the opponents, instead by averaging each winning percentage of the opponents.) All games involving the team whose RPI is being calculated are ignored in this process.

- **Opponents' opponents winning percentage (OOWP):** The same process as described above, except calculated for the opponents of a team's opponents. Note that there is an exception for out-of-state teams, which is addressed below.

### **How will out-of-state opponents be handled?**

Out-of-state opponents from the following states will be counted the same as in-state opponents:

- New Mexico
- Arizona
- Utah
- Wyoming
- Nebraska

In other words, teams will receive the true value of their opponents' opponents winning percentage. This is because each of the states listed above are neighboring states to Colorado, and each of these states are also MaxPreps partners. This ensures accurate reporting of data.

All other out-of state opponents will be handled in the following manner: Their direct winning percentage (for example, .750) will count toward the formula, but each of their opponents will have a .500 winning percentage assigned. Were this not the case, schools would be chasing tens of thousands of opponents of out-of-state opponents

over the course of a season, and there is no way to ensure the accuracy of that data.

The .500 figure was selected because it is the average value of opponents' opponents winning percentages across all sports in the data we've run.

Note that it is the responsibility of the Colorado school to ensure that the data from their out-of-state opponent is correctly listed on MaxPreps.

### **How will international opponents be handled?**

Due to the difficulty involved with obtaining accurate data on a consistent and timely basis from schools outside the U.S., international opponents will not count toward the RPI calculation.

### **Are games against non-varsity teams counted toward the RPI calculation?**

No, they are not.

### **Do scrimmages or Foundation Games count toward the RPI?**

No, they do not. Note that you should not be putting these games on your official MaxPreps schedule. Instead, put them on your Team Calendar in MaxPreps. [More information is available on this page.](#)

### **How will cross-classification games be handled?**

There are two answers to this question. One pertains to football, and the other pertains to the rest of the sports.

Football will use a modifier to handle these cross-classification games. Other sports will not. The reason for the difference is football plays a 10-game regular season, which is far-and-away the fewest of any sport. (By comparison, for example, baseball plays a 19-game regular season, and basketball plays 23.) Thus, there is less data to work with in football to ensure the accuracy of the result. Using a modifier helps to increase the accuracy.

The modifier for football will be a 15 percent difference. This number was arrived at when comparing the average RPI of football teams in different classifications over the past couple of years. On average, there was a 15 percent difference from a 5A team to a 4A team, from a 4A team to a 3A team, and so on.

As was the case with the Wild Card point system which the RPI will replace in football, there will be a one-time exception for a team playing down. That is to say, when a 3A team plays a 2A opponent for the first time on their schedule, that 2A opponent will count as a 3A team. Subsequent games against teams from lower classifications will count as their true classification.

Unlike the Wild Card point system, however, this modifier only comes into play when a team wins. Under the modified RPI system which will be used in football, each game is assigned a value based on that team's classification. Again, there is a 15 percent difference between them. Those (rounded) values are:

<b>Class</b>	<b>Value</b>
6-man	1.000
8-man	1.150

1A	1.323
2A	1.521
3A	1.749
4A	2.011
5A	2.313

So, for example, a 3A team will always have a game value of 1.749, regardless of who they're playing. The value of the win changes according to their opponent (unless the exemption comes into play). The result gives us a modified winning percentage. This is the number that will be used throughout the formula, including for their opponents, and the opponents of their opponents.

Using our example, let's pretend that 3A team (call them Team A) plays another 3A team (Team B), and beats them. They then play a different 3A team (Team C) and lose to them. The third week, they play a 2A team (Team D), and beat them. Finally, they play yet another 2A team (Team E), and beat them as well. Here's what the calculation would for Team A look like:

<b>Opponent</b>	<b>Result</b>	<b>Game Value</b>	<b>Win Value</b>	<b>Winning Percentage</b>
Team B	W	1.749	1.749	1.00
Team C	L	1.749	0.000	0.00
Team D	W	1.749	1.749	1.00
Team E	W	1.749	1.521	0.87

Now, Team A in this scenario is 3-1. Their true (unmodified) winning percentage would be 0.75. However, with this modified system, where their total win value (roughly 5.019) is divided by their total game value

(6.996), their modified winning percentage is 0.717.

Over the course of a season, if Team A were to go 9-1 with wins over all 3A teams the rest of the way, their modified winning percentage would be 0.887 (as opposed to a true winning percentage of 0.900). It is worth remembering that this number is 30 percent of the overall formula.

Again, all other sports *will not* be using the modified system because their regular seasons are much longer.

### **What happens if two teams are tied in the final RPI standings?**

We have created a tiebreaker for this unlikely scenario. It is as follows:

1. Head-to-head result between the two teams
2. Winning percentage
3. Opponents' winning percentage
4. Opponents' opponents winning percentage
5. Highest-rated win (according to the final RPI standings)
6. Next-highest rated win (exhaust all possibilities)
7. Coin flip

The only reason for the coin flip is as a last result if all other scenarios happen to be tied.

### **How should teams be scheduling?**

The main thing to remember with the RPI is it takes an entire schedule into account. Do not fret over scheduling one game. Instead, see the entire schedule as a whole and try to judge if it will be tough or not.

## **Does the score of the contest matter in the RPI formula?**

Only in that it gives a winner and a loser (or results in a tie). There is no factor for score differential in the RPI formula. A 1-0 win counts the same as 100-1.

## **What happens if a game is cancelled and can't be rescheduled?**

Because the RPI system works off of averages, it won't make a difference in the final formula if a game cannot be rescheduled. It would not penalize, nor benefit, any team involved in that scenario.

## **How do schools that drop programs affect the RPI?**

If a school drops a program prior to the start their competitive season, no forfeits will be involved. Instead, their opponents now have open dates in the sports where they were scheduled to play the teams who dropped their program, and they are free to try and find another game, if possible.

If a school drops a program after their competitive season has started, that team shall forfeit their remaining games to their opponents.

In this instance, the competitive season is defined as the first day a team plays in a contest.

## **Where should we be reporting scores?**

Continue reporting scores to MaxPreps. The official RPI feed will be calculated off of results entered into that platform.

## **How often will the RPI standings be published?**

The RPI standings will not publish for the first time until a season hits the midway point.

Once they do, feeds are updated nightly during the regular season.