Laxnumbers FAQ

- **How does Laxnumbers compute its ratings?** Like Laxpower's power rating algorithm, Laxnumbers' ratings are mathematically computed based on game results in the system with no subjective weighting or human input. All games count equally. Laxnumbers' algorithm computes an overall average performance rating for teams based upon how well they play against other teams and how good those teams are. A team's overall rating then determines a team's ranking position based on the national, regional, state, and/or sub-state ranking categories a team is placed in. A team's overall rating is typically not reflective of the team's best or worst games, but a mathematically computed average performance rating that translates game results into a numeric representation of a team's performance.
- **What do the columns on the rankings page mean?** "Record" is represented by wins-loses-ties. "AGD", or average goal differential, and "SCHED", or strength of schedule, are the two main factors in the algorithm. AGD is currently calculated by accumulating the goal differential of each game, to a maximum of 10, and divided it by the number of counting games (more info below) played. The strength of schedule is computed by averaging the rating of each game opponent. AGD and SCHED are then added together to compute a team's overall performance rating.
- **What does a team's overall rating mean?** Everything is relative. A team's overall rating number specifically means nothing but might be used to understand the relative competitiveness of two different teams. In Laxnumbers' algorithm, a 1.0-point differential between two teams equates to a theoretical goal 1.0 goal advantage for the higher ranked team. If Team A is rated 85.00 and Team B is rated 80.00, then Team A would be expected to win by 5 goals in a matchup. The "Rating Math" tab on each team's team info page breaks down how each performance impacted a team on a game-by-game basis.
- **Does Laxnumbers use a maximum goal differential?** Yes, Laxnumbers uses a maximum goal differential of 10. Based on our conversations with partners across the country, including the NJSIAA, we strongly believe a 10 goal maximum strikes the right balance between promoting good sportsmanship and a fun playing environment on the field and producing accurate and credible rankings. There is one small caveat. Certain games may be considered "non-counting".
- **What would constitute a "non-counting" game in Laxnumbers?** Intrastate games (both teams are from WI) where two teams are more than 10 goals apart AND the higher ranked team wins by at least 10 goals will be considered "non-counting" in Laxnumbers to avoid negatively impacting the winning team in that scenario. If the teams are more than 10 goals apart AND the higher ranked team does not win by 10 or more goals, the game will count towards the rankings like normal. While it is important the higher ranked team is negatively impacted in a scenario like that, it is also important the lower ranked team is rewarded if they outperform expectations. Games between teams less than 10 goals apart and games between teams from different states will always be considered a counting game in Laxnumbers.
- **We beat Team X. How can they still be ranked ahead of us?** At the end of the season, virtually every team has beaten at least one team ranked ahead of them in the rankings and lost to at least one team ranked behind them in the rankings. Yes, it may seem wrong, but a team that you have a winning record against can be ranked ahead of you. It is all in the mathematics. It depends on who else your team has played and how well you did as well as who the other

team has played and how well they did. Over the course of the season there will be some anomalies. Sometimes a team simply matches up well against an opponent but has not necessarily performed better than them over a whole season's body of work.

- **We won our last game, but our rating went down. How does this happen**? A team's overall performance rating can go down even though a team wins. This can happen for a couple of different reasons. First, if your team is rated 3.0 points (1 point = 1 goal) better than your opponent and you win a game by 1 goal, your average goal differential (AGD) for the game is +1.0 against a team that it was expected to be +3.0. This would likely have a negative impact on your rating. Another scenario has you doing as expected against your opponent, but a large percentage of the teams you played earlier in the season did unexpectedly badly. This lowers your strength of schedule and would lower your team's rating. It is almost impossible to guess how much and in what direction your rating will move each update because of the complexity of the math. Laxnumbers has a "Rating Math" tab on each team's info page that explains the math behind each game result and if it positively or negatively impacted a team.
- **Are some teams, states or geographic areas given preferential treatment? No**. Laxnumbers does not give preferential treatment to any specific teams, states, or geographic areas. All teams are assumed to be equal and have a rating of zero at the start of the season before the system mathematically calculates your SCHED and AGD based entirely upon game performance. A team's SCHED is not only determined by the teams it plays, but by the teams its opponents play, and its opponents' opponents play, etc. All teams in a given age level and gender (i.e. Boys High School) are ranked in one statistical pool. The algorithm does not know what state or area a team is from or any of the team's past historical ratings. It simply uses current season game results to compute an average performance rating based upon who a team has played (SCHED) and how well they have done (AGD) for the games recorded in the system.
- **How accurate are the rankings?** Early in the season when there are few played games, the limited data in the system can output funky results. When we first release the rankings as most teams hit the 4-6 game mark, the rankings are still working themselves out. As most teams start getting 8-10 games under their belts, the accuracy of the rankings improves exponentially. It only continues to get more accurate as more games are entered into the system. There are, however, some occasional exceptions.

  If a group of teams (i.e. group or conference/division) doesn't play teams outside its initial subset, their overall rating and ranking placement relative to all other teams cannot be accurately determined. Their rating and ranking placement relative to one another within the subset is still accurate, however. Groups of teams with limited outside play can be inaccurately skewed by the few game results connecting them to all other teams, which might not be representative of the group's overall ability. Accuracy significantly increases with more games and more interplay. Therefore, it makes sense for there to be a minimum number of games before teams are ranked which is why we do not release the rankings until most teams in the ranking category have hit the 4-6 game mark.

  Assuming teams have all played enough games against conference and non-conference teams, inaccuracies may still exist. This is common in ranking systems. Some teams play differently (a lot differently) depending upon which goalie is in net for a specific game. In this case, the ratings average out the play and may not completely reflect either scenario. Missing players, home vs. away, suspensions, and double rostered players are a few other scenarios

that could influence the accuracy of the ratings. It is not always an exact science due to many moving parts.

Like any rankings algorithm, there are a couple weaknesses to the Laxnumbers' system. The first deficiency is with teams that emphasize development in some games. Teams that focus on development can be "hurt" because their performance tends to be lower than their true playing capability if they played to their full potential in some games. That same team may then focus on winning conference, league, district, and state tournaments, and succeed in their goal because they have fostered player development over the course of the season. However, they may never achieve the high rating and ranking placement that they truly "deserve". Secondly, teams that are hot in the second half of the season are still negatively impacted by poor performances early in the season. Vice versa is true for teams that start out hot and go "cold" in the second half of the season. Since all games throughout the season count equally, a team's overall rating may not always reflect a team's true playing ability near the end of the season.