

## Full Explanation

# RANK WRESTLERS

### Step 1: Determine Eligible Wrestlers

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Not every wrestler counts toward the ranking. We apply an eligibility filter:

A wrestler must have competed within 21 days of the team's most recent event to be considered "eligible" for the active roster.

This ensures rankings reflect the roster that actually competed in recent dual meets. Wrestlers who are injured, quit, or stopped competing are automatically removed.

### Step 2: Calculate Two Scores

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We calculate **two different scores** for each team:

Score Type	What It Includes	Used For
Active Roster	Only eligible wrestlers	Display rankings
Full Strength	All wrestlers this season	H2H calculations

**Why Full Strength for H2H?** Ensures past wins aren't affected by current injuries. If you beat a team in November and their star wrestler gets injured in January, you shouldn't get extra credit just because their current roster is weaker.

### Step 3: Calculate Both Scores

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**Active Score:** Average of top 11 *eligible* wrestlers' Combo scores (wrestlers who competed in the past 21 days).

**Full Strength Score:** Average of top 11 wrestlers' Combo scores *all season*, regardless of recent activity.

Example: If a team has 15 wrestlers but 3 haven't competed in 21+ days, only 12 are eligible for the Active Score. Full Strength uses all 15.

#### Step 4: Apply Head-to-Head Adjustments

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This is where dual meet results matter. The key principle:

When a lower-ranked team beats a higher-ranked team, the winner gets credit and the loser gets penalized.

#### How We Process (Bottom-Up):

- Start with the lowest-ranked team (by full strength score)
- Check all their dual meets
- For each win against a higher-ranked opponent, calculate an adjustment
- Apply the adjustment to both teams (winner goes up, loser goes down)
- Move to the next team and repeat

#### The Adjustment Formula:

$$\text{Adjustment} = (\text{Higher Team's Score} - \text{Lower Team's Score}) \div 2$$

#### Key Takeaways

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- **Eligibility is relative** - Wrestlers must have competed within 21 days of the team's last event
- **Full Strength for fairness** - H2H adjustments use full strength scores so teams aren't penalized for injuries that happened after their dual meets
- **Upsets matter** - Beating a higher-ranked team earns you credit; losing to a lower-ranked team costs you
- **Order matters** - We process from lowest to highest, so early upsets can create chain reactions
- **Scores update progressively** - Each adjustment uses the team's score at that moment in processing
- **Both teams are affected** - Every qualifying upset adjusts both the winner (+) and loser (-)