

More than you ever wanted to know about...

The new rules for the Age-Handicapped Competition

The rules for the Age-Handicapped Competition (formerly part of the Sierra Ski Chase, now part of the Master's Challenge) have not worked well in recent seasons and, consequently, new rules will be used for the 2018-19 ski season.

What was wrong with the old rules?

Age handicapping is achieved by balancing the points awarded for placing well, which usually favor younger skiers, with points awarded for age, which favor older skiers.

The old rules used tables to assign place points. For men, a table gave first through 40th place finishers 45 points down to 1 point. A similar table for women gave first through 20th place finishers 40 points down to 1 point. Finishers beyond the 40th man and 20th woman received no place points.

The fact that the place points tables had fixed size led to unfair age handicapping for large and small races. For example, the Great Ski Race draws many hundreds of skiers. The tables gave the vast majority of those skiers zero place points, yet all the skiers were eligible to receive age points. Hence, older skiers had an unfair advantage. On the other hand, for a small race, for example with 10 men, the tables gave all the racers at least 30 place points, blunting the effect of the age points and putting older skiers at a disadvantage. These problems were avoided by creating exceptions for the Great Race and small races; for these races, all racers received the same, fixed number of points and no place or age points were given.

The exceptions in the old rules meant there was no age handicapping for the Great Race and small races. Until about a decade ago, small races were rare, so most races had age handicapping and the old rules worked reasonably well. Recently, though, the majority of races have been small, with the result that only 2 of 12 races had age handicapping for the 2017-18 season and 5 of 20 did for the 2016-17 season. Thus, the Age-Handicapped Competition had minimal age handicapping.

The new rules

The goal for the new rules is to maintain the behavior of the old rules for the race sizes where the old rules worked well, but to now apply a similar behavior to all sizes of races. Thus, the need for exceptions would be eliminated and all races could have age handicapping. This has been achieved by replacing the fixed-size place tables with a formula that gives the first place finisher about 45 points, the last place finisher about 0 points, and everyone else some number of points between 45 and zero based on their place. The same formula will be used for men and women.

Below are the new rules. To highlight their similarities and differences compared to the old rules, they have been written here as an edited version of the old rules. New text is underlined and text that has been eliminated is crossed out.

1. For each Master's Challenge race, each racer receives 10 **default** points.
2. In addition to default points, ~~if the race turnout is at least 40, then~~ each racer is eligible to receive **age points** and **place points**.

3. ~~Turnout~~ is the number of men plus women, including both Far West members and non-members, who complete a race.
4. Place points are awarded using the formula

$$45 * (N - P + 0.5) / N$$

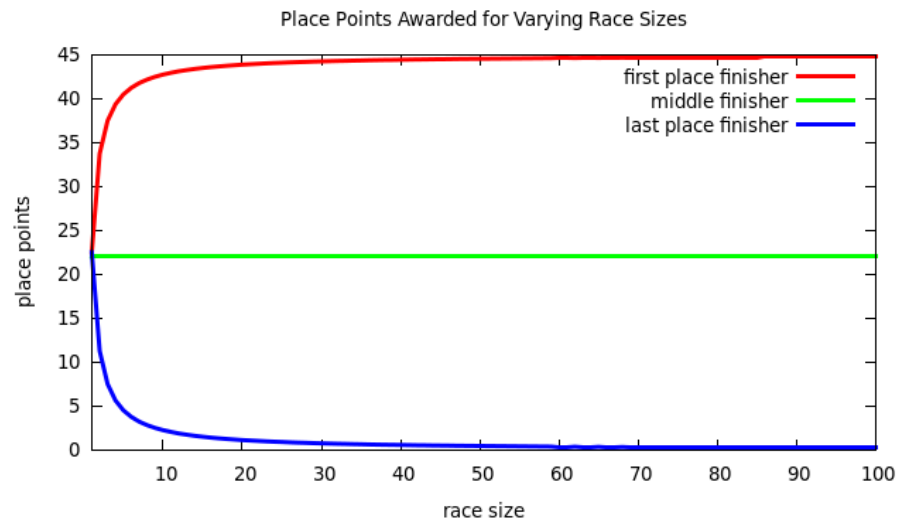
where **N** is the number of skiers of the same gender in the race, including Far West members and non-members; and **P** is the racer's finishing place among all skiers of the same gender in the race. For the first place finisher, P=1, for second place P=2, etc.

5. ~~Men's place points~~: the top 40 male finishers, including non-Far West members, are awarded place points using the table below. The top finisher receives 45 points, the next receives 42, and so forth, down to the 40th place finisher, who receives 1. The 41st finisher and beyond receive 0.
~~45, 42, 40, 38, 36, 35, 34, 33, 32, 31,
30, 29, 28, 27, 26, 25, 24, 23, 22, 21,
20, 19, 18, 17, 16, 15, 14, 13, 12, 11,
10, 9, 8, 7, 6, 5, 4, 3, 2, 1~~
6. ~~Women's place points~~: the top 20 female finishers, including non-Far West members, are awarded place points using the table below. The top finisher receives 40 points, the next finisher receives 34, and so forth, down to the 20th place finisher, who receives 1. The 21st finisher and beyond receive 0.
~~40, 34, 29, 25, 22, 20, 18, 16, 14, 12,
10, 9, 8, 7, 6, 5, 4, 3, 2, 1~~
7. A racer's raw age points is the number of years that their age exceeds 34. For example, a 20-year old receives 0 age points, a 40-year old receives 6, and an 80-year old receives 46. A racer's age points is their raw age points times (N - 0.5) / N, where N is the same as in #4 above.
8. The ~~Great Ski Race~~ is a special case in which each finisher receives exactly 30 points and no other default, age, or place points.
9. To be eligible for prizes, a racer must complete five Master's Challenge races.
10. After the last race, a season total is computed for each racer by adding the points from their best five races and then adding 10 points for each race they complete beyond their first five. Racers are ranked using these totals against other racers in their gender.
11. The top three men and top three women are awarded prizes.

Comments on the new rules

The formula in #4 replaces the place points tables in #5 and #6, and is the most significant change in the new rules. For all but the smallest races, the first place finisher gets very close to 45 place points, the last place finisher gets very close to zero, and everyone else gets place points between 0 and 45 in proportion to their place. People could debate how to score very small races. Consider the extreme, a race with just one racer, who finished both first and last. Should the racer get 45 place points? Zero

points? The new rules take the middle ground and award 22.5 place points, half the maximum of 45. If there are two racers, the first place finisher gets 3/4 of the maximum 45 and the last gets 1/4 of the 45. As the race size grows, the 1st place finisher receives very close to 45 place points and the last finisher receives close to zero. This behavior is illustrated in the graph below.



Because the place points are scaled down for very small races, the age points must be similarly scaled down to avoid giving older racers an unfair advantage. That is why the scale factor $(N - 0.5) / N$ has been added for computing the age points in #7. It has negligible effect if the race is not small.

The text that has been struck from #2 eliminates the exception for small races and the deletion of #8 eliminates the exception for the Great Ski Race, with the result that all races are age handicapped.

Note that the new rules are the same for men and women.