

How are Race Scores Calculated?

Our ranking system uses pacesetters to determine a par time for each race. Every race has a unique par time, depending on who has competed. It is important to understand the basic concept behind the ranking scores: scores are calculated as a comparison between an athlete's race time and the projected time of the best age group athlete in the country (par time). For example, if the par time of a sprint race is 60 minutes, someone who completed the race in 72 minutes would be 20% slower than the best age grouper, calculated as 1.2 times the par time. However, we do not know who the best age group athlete in the country is – so we estimate his performance by creating a Par Time.

It would have been possible to give out ranking scores based on these numbers, where the lowest score is best; a score of 1.0 being the best score and all other scores going up from there. This way, it would be easy to see how each athlete's times compare to the times of others. But in most sports, the higher scores reflect a better performance. So it was decided to take the inverse of this number ($1/1.2$ for this mini-example giving .833333) to achieve this goal. Fractions of "1" didn't seem sufficient, so this number is multiplied by 100 (giving our example athlete a score of 83.3333).

There are six steps used to determine race scores:

1. Find all possible pacesetters: Determine which participants received an overall score in the previous year. These participants are considered "pacesetters" in this event. (Note: pacesetters are not athletes who competed in the race the previous year as well as this year. Pacesetters are any athlete who received an overall score based on any three on-road triathlons (2 or more races of any other sport) from the previous year. An overall score tells us what type of performances the athlete generally puts in.
2. Convert time into minutes decimal format: We change participants' times into minutes so they can work in the mathematical formula (example: a time of 00:49:30.0 would change to 49.5)
3. Find each pacesetter's calculated time: This is done by multiply each participant's time in minutes by their pacesetter ranking divided that by 100 (this removes a certain percentage of their time). This tells us how quickly an athlete that is ranked at a 100 could have completed the course.
4. Remove top and bottom 20% of calculated times: Drop the top 20% & bottom 20% of calculated times. This removes any extraordinarily great performances (a pacesetter significantly outperforms their previous year pacesetter ranking) and extraordinarily poor performances (causes could be a flat tire or dehydration for example).
5. Determine Par Time: Average the remaining 60% calculated times to come up with the "par time." We are interested in the "par time" as this is what all of the participants' times will be compared to when calculating their individual rankings. Competitors are actually racing against the "par time" as far as scoring is concerned.
6. Determine each individual's race score: Divide the each participant's finish time by the par time, invert and multiply by 100. (For example: assume a participant had a finish time of 49.5 and Par Time was set at 45 minutes

Original Score: $49.5/45 = 1.1$

Inverted Score: $1/1.1 = .909090$

Race Score: $.909090 * 100 = 90.9090$

Below is an example of how scores would be calculated in a race

Athlete Name	Finish Time	Par Time	Finish/Par	Invert	Score	Gender Score
John Doe	49.0167	44.2449	1.1078	0.9026	90.2650	
Jim Smith	49.0667	44.2449	1.1090	0.9017	90.1730	
Don Jones	49.2833	44.2449	1.1139	0.8978	89.7767	
Dan James	49.3167	44.2449	1.1146	0.8972	89.7159	
Mike Adams	49.3667	44.2449	1.1158	0.8962	89.6250	
Nate Andrews	49.5833	44.2449	1.1207	0.8923	89.2335	
Martin White	51.3667	44.2449	1.1610	0.8614	86.1354	
Ann Robinson	52.5	44.2449	1.1866	0.8428	84.2760	92.7036
Kim Walker	53.4833	44.2449	1.2088	0.8273	82.7266	90.9992
Tom Walter	53.7167	44.2449	1.2141	0.8237	82.3671	
Karen Toms	55.4333	44.2449	1.2529	0.7982	79.8165	87.7981
Liz Brown	56.7	44.2449	1.2815	0.7803	78.0333	85.8367
Mary Smith	56.7667	44.2449	1.2830	0.7794	77.9416	85.7358
Sue Blue	57.8667	44.2449	1.3079	0.7646	76.4600	84.1060
Sharon Woods	59.55	44.2449	1.3459	0.7430	74.2987	81.7286
Sally King	64.8167	44.2449	1.4650	0.6826	68.2616	75.0877