

Introduction to the Performance Formula

The Performance Formula is a mathematical calculation aimed at 'scoring' a horse's performance over an endurance course to enable placings to be given.

So how is it worked out?

The Performance Formula = (Speedx2 -Minimum Speed) x 100 divided by heart rate.

Let's break the formula down.

The first part of the equation is based around the completion speed and the minimum speed. The lower the minimum speed, the less that is taken off the doubled completion speed for the purposes of the formula. This means that in a novice class, speed is slightly more of a deciding factor than in an open/advanced class, and you will gain slightly more benefit from lowering the pulse in an open/advanced class than you will in a novice class.

Example

Let's assume the horse completed at 12kph.

Novice class: $(12 \times 2 - 8) = 16$

Open/advanced class: $(12 \times 2 - 9) = 15$

Then apply the rest of the formula and you get the final score. Let's assume this horse completes with a pulse of 43. The scores for novice and open/advanced level would be as follows:

Novice class: 37.2 PF points

Open/advanced class: 34.88 PF points

Don't worry if you don't do maths. There is a [helpful ready reckoner](#) on the Endurance GB website which will calculate the score for you and the calculation is also built into the Technical Steward spreadsheet to assist our hardworking Technical Stewards.

Pulse vs speed

Let's take a hypothetical horse completing an 80km open Graded Endurance Ride.

The horse's finishing pulse is 45 and its finishing speed is 12kph. It will score 33.33 PF points. (Riding time 6h40)

- If that horse had finished with a pulse of 43, it would score 34.88 PF points. That means the horse would score more PF points than a horse completing the distance at 12.3kph with a pulse of 45 (Riding time 6h30). So those two beats per minute are 'worth' ten minutes of riding time to that horse.
- If that horse had finished with a pulse of 41, it would score 36.59 PF points. That means that the horse would score more PF points than a horse completing the distance at 12.7kph with a pulse of 45 (Riding time 6h17). So those four beats per minute are 'worth' 23 minutes of riding time to that horse.
- If that horse had finished with a pulse of 38, it would score 39.47 PF points. That means that the horse would score more PF points than a horse completing the distance at 13.3kph with a pulse of 45 (Riding time 6h00). So those seven beats per minute are 'worth' 40 minutes of riding time to that horse.

As you can see, getting the horse fitter and lowering their pulse at the end of the ride will score you more points than riding faster. The trick is to ride at the perfect speed that will bring your horse in at its lowest possible finishing pulse for its level of fitness. You will get

more points for riding slower with a low pulse than you will riding faster with a higher pulse. If you push on and end up raising their finishing pulse by even a couple of beats, you will have lost the advantage that the speed gained you. Performance Formula can most definitely be a case of the tortoise and the hare.

Calculation of awards

As a low pulsing slower finisher can very easily end up winning the class, the results in a Performance Formula class cannot be finalised until everyone has finished. If the results are being given out on the day, you will need to be patient as there could be a couple of hours' difference in finish times across the class. Some rides, particularly single day rides where people need to get home, may give their results and rosettes/certificates out at a later date for this reason.

Speed restrictions

In a novice GER class, you must ride between 8* and 15kph. In an open/advanced GER class, you must ride between 9* and 18kph. Any speed outside of those parameters will result in an elimination.

**A ride organiser can apply to the Board of Endurance GB to lower the minimum speed in their class, for example where their route covers particularly challenging terrain. However, if the minimum speed is lowered then this will slightly increase the weighting on speed for the purposes of the performance formula as a lower number will be subtracted from the doubled speed in the first part of the equation.*

For health, safety and welfare reasons a ride organiser may keep a points restriction in relation to speed on their performance formula calculation. This may be the case, for example, where the route is particularly sensitive or challenging and the ride organiser does not want to incentivise people riding faster than they would in a normal Graded Endurance Ride. The restriction in effect creates an 'optimum' speed, above which competitors will receive no competitive benefit. In most cases this will mirror the 'optimum' speed already present in a Graded Endurance Ride (10kph for novices and 13kph for open/advanced Graded Endurance Rides), but it may be different or it may only apply to novices. Please read your ride paperwork to understand any additional scoring criteria which may apply to the ride you have entered.

Regardless of whether an additional restriction is in place or if it has been removed, please remember that although you are competing it is not a race; we are not permitted to race on rights of way. We have to share our trails with other users and leave a good impression of endurance riding with whoever we meet. Plus, you will score more PF points if your horse is cool, calm and relaxed at the final vetting with a low finishing pulse indicating that it has coped easily with the ride rather than having sped round at the fastest speed possible.

If you have any queries about Performance Formula, please contact the [Operations Committee](#).

Enjoy your ride!