

Marathon runners' times develop in a U shape

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Spanish researchers have demonstrated that the relationship between marathon running times and the age of the athlete is U-shaped. The work shows the unusual fact that it takes an 18-year-old athlete the same amount of time to finish a marathon as a 55- or 60-year-old runner.

The 42,195 metres that are nowadays known as the [marathon](#) were run for the first time at the London Olympic Games of 1908. Since then, many athletes have completed this race and there has also been numerous scientific studies conducted on endurance runners.

Up to now, the majority of these works came to the conclusion that [performance](#) in long-distance races decreases progressively from the age of 25 onwards. Now, a study by the Camilo José Cela University in Madrid has found that the relationship between the amount of time a race takes and the runner's age is not increasing and linear throughout adulthood, but rather forms a U graph.

In order to conduct this study, the scientists created a database with the times of more than 45,000 runners who took part in the New York marathon in 2010 and 2011.

"This information included the top ten runners in both the male and female categories between the ages of 18 and 75," Juan Del Coso Garrigós, scientist from the Madrid university and main author of the study, explained to SINC.

The results, published in the journal *Age*, demonstrated that in men, the best times were achieved at 27 years old, while the age for the best running performance in women was 29.

Before this age, athletes' marathon times were 4% slower for every year under this age in both men and women. Afterwards, athletes increased their race times at a rate of 2% per year in both sexes.

"While the rate at which performance drops is moderate until the age of 55, from then on the drop becomes sharper in both male and female runners," Del Coso stated.

An unusual U

This relationship between physical performance in a marathon and age reveals the unusual fact that it takes an 18-year-old [athlete](#) a similar amount of time to finish a marathon as a 55- or 60-year-old runner.

Lastly, the study found a certain contrast between the sexes. "The difference in the amount of time it takes men and women to finish a marathon remains at approximately 20% until 55 years of age. But from this [age](#) onwards the differences between the sexes are greater and reach more than 40% at 70 years old," the expert concluded.

More information: Beatriz Lara & Juan José Salinero & Juan Del Coso. "The relationship between age and running time in elite marathoners is U-shaped". *Age* (2014) 36:1003 [DOI: 10.1007/s11357-013-9614-z](#)

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