

The smartest, the fastest, and the highest-flying: a pigeon's (*Columba livia*) perspective on La Fontaine's 'The Hare and the Tortoise' fable.

Marlier D.¹

1. Department of Veterinary Management of Animal Resources, Poultry Rabbit and Racing Pigeon Medicine, FARAH - Sustainable Livestock Production, Faculty of Veterinary Medicine, ULiège
This research was funded by the Veterinary Faculty Special Research Funds: PIGEON-LEAD.

Corresponding author: dmarlier@uliege.

Pigeon racing applies selective breeding to favor athletic performance and navigational ability in pigeons (*Columba livia*). Although orientation performance long fascinated breeders and researchers, its estimation remained limited. In the 1980s–1990s, it relied on visual observation at release sites, with orientation inferred from the angle between disappearance and the loft, providing no information between departure and arrival. Miniaturized GPS loggers now allow precise monitoring of speed, altitude, and route efficiency. Three releases of ten pigeons were analyzed using Spearman's rank correlation (ρ) to assess links between arrival order, distance ratio (straight-line vs actual distance), real flight speed, and altitude. In Release 1, arrival order correlated with ratio ($\rho=0.96$, $p<0.001$), and speed with altitude ($\rho=0.82$, $p=0.004$). In Release 2, arrival order was linked to ratio ($\rho=0.90$, $p<0.001$) and speed ($\rho=-0.93$, $p<0.001$), while ratio correlated negatively with speed ($\rho=-0.76$, $p=0.011$). In Release 3, arrival order and ratio were perfectly correlated ($\rho=1.00$, $p<0.001$); other links were not significant. Wilcoxon tests comparing Releases 1 and 3 from the same site showed lower ratios ($p=0.016$) and higher speeds ($p=0.047$) in Release 3, with no altitude difference ($p=0.078$), indicating improved athletic and navigational performances. Arrival ranks were poorly conserved across races. Route efficiency consistently emerged as the strongest predictor, suggesting that navigational efficiency is the main determinant of arrival order and highlighting the value of GPS-based monitoring for avian navigation research.

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