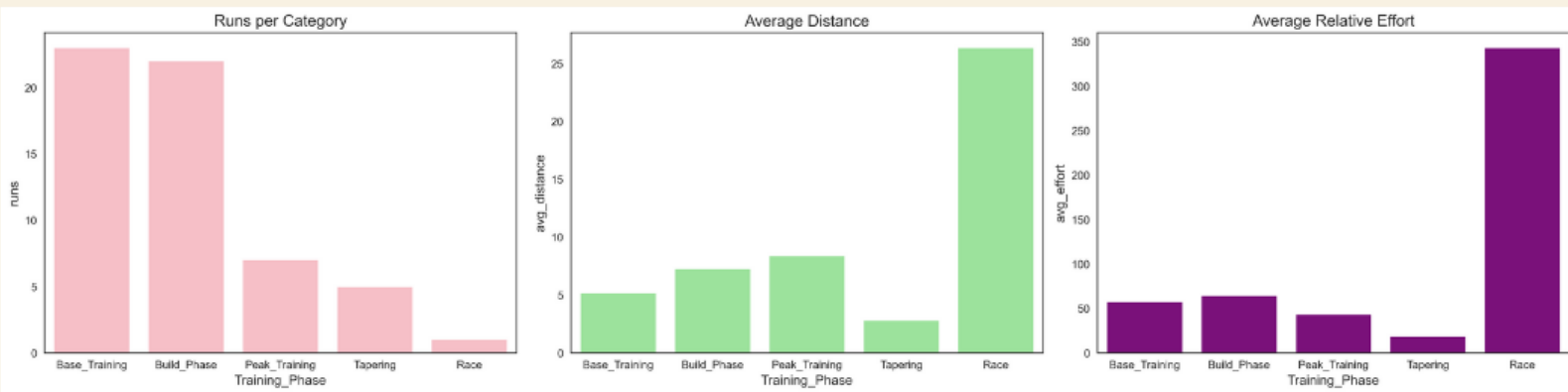


Running the Numbers: Turning Heartbeats into Insights

Part 1: What shaped my training?

A year ago, I completed my second marathon. As a data enthusiast, I thought that it would be interesting to analyze some of my data from my 16-week training cycle. I analyzed general daily physio data from my Ringconn smart ring as well as running-specific data recorded on my Apple Watch Series 5 imported from Strava. Take a look!

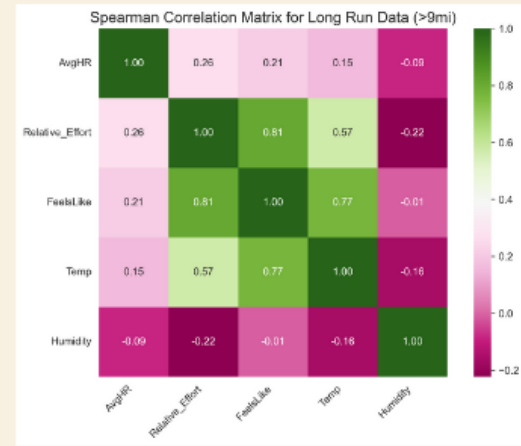
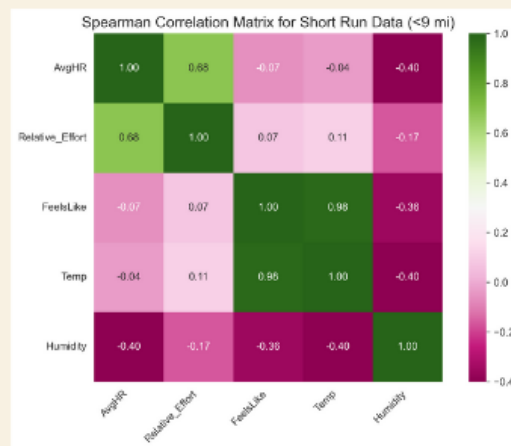
- This data ranged from May 2, 2025 to March 3, 2025.
- I completed 58 runs totalling ~ 377 total miles
- I broke down my training runs into 5 subcategories: base training (weeks 1-6) , build phase (weeks 7-12) peak training (weeks 13&14), tapering (weeks 15&16), and race day (last day of week 16)



How did weather affect my training efforts?

My training plan ran from early May to early September, so it was hot and humid 🥵

The following plots show correlation matrices between weather factors (humidity, actual & RealFeel temperature) and performance strain (relative effort*, heart rate)



Long runs were significantly more impacted by heat and humidity than short runs

- The link between **relative effort** and **apparent temperature** was much stronger in long runs (+0.73 difference).
- The link between **relative effort** and **temperature** was stronger in long runs (+0.47 difference).
- The link between **relative effort** and **humidity** was stronger in long runs (+0.31 difference).

🔥 External stressors like heat and humidity compound over time, placing greater physiological strain on long runs.

😓 Short runs are more insulated from these effects – likely because heat doesn't have as much time to tax the system

*Strava calculates Relative Effort primarily using heart rate data. It measures the time spent in various heart rate zones and assigns a score based on the intensity of the effort rather than just the total time spent exercising. A short and hard activity can require just as much effort as a long and leisurely one, and Relative Effort makes it so you can compare the two