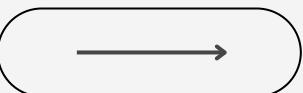


# RUNNING SMARTER, NOT JUST HARDER

Exploring Marathon Success



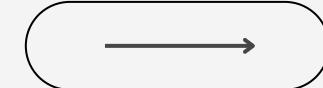
EDA PROJECT  
Katia Barsuk

DATE  
19/12/2024

02

# WHY MARATHONS?

We all wonder, what does it take to run faster? This project bridges anecdotal curiosity and data-driven insights.



# DATA AND HYPOTHESES

87 RUNNERS FROM THE PRAGUE MARATHON, 2017

Featuring:

- Average number of kms / Last 4 weeks before the Marathon
- Average training speed / Last 4 weeks before the Marathon
- Pacing Strategy
- Marathon finish time



01

RUNNING A MARATHON  
AT A STEADY PACE  
IMPROVES  
PERFORMANCE

02

HIGHER TRAINING  
MILEAGE RESULTS IN  
FASTER TIMES

03

ELITE RUNNERS PACE  
BETTER THAN AMATEURS

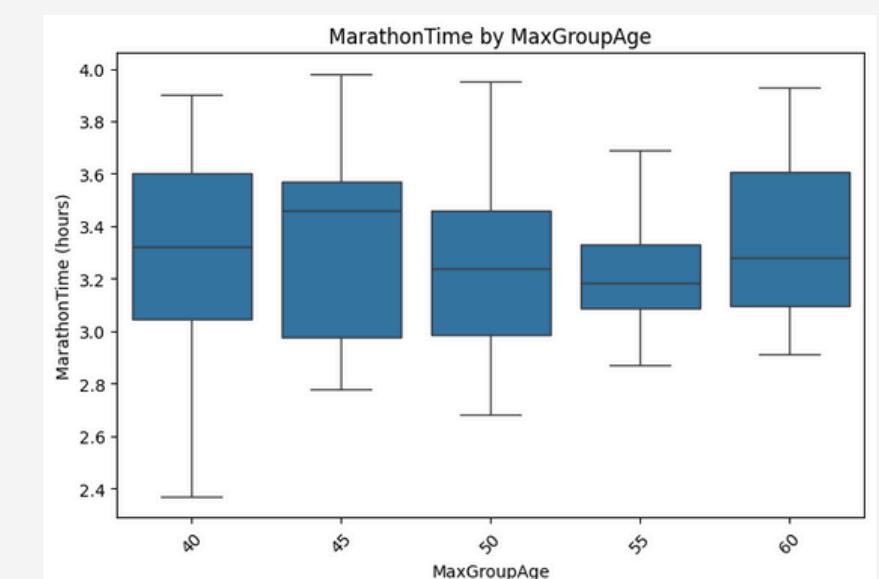
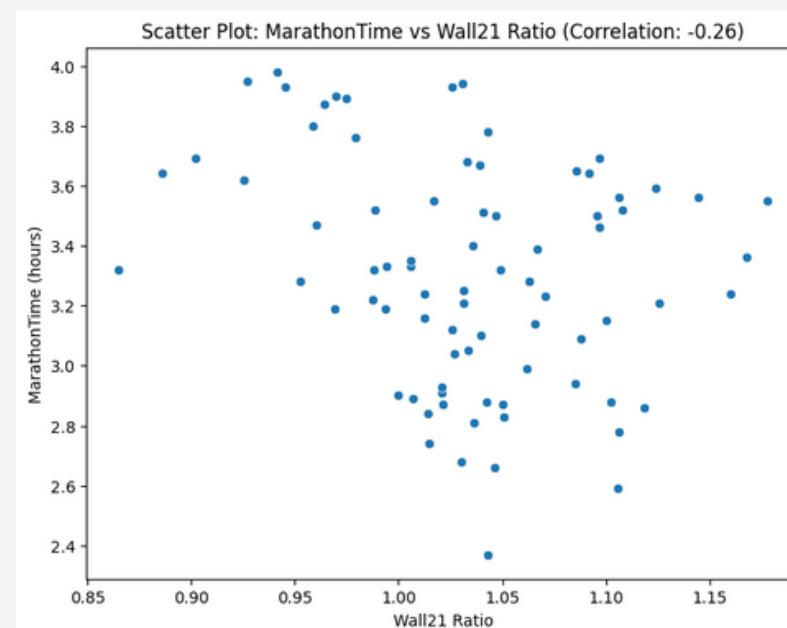
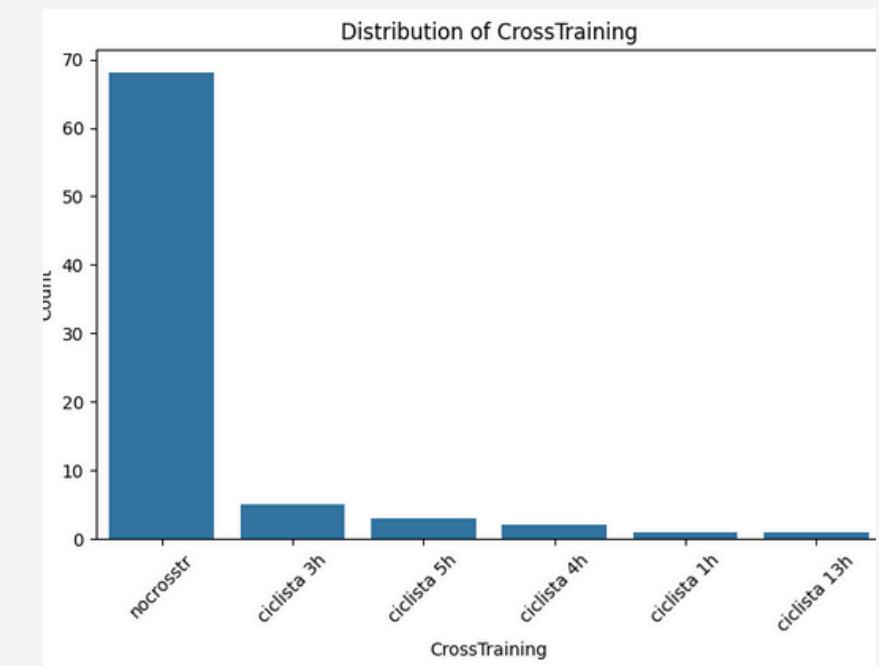
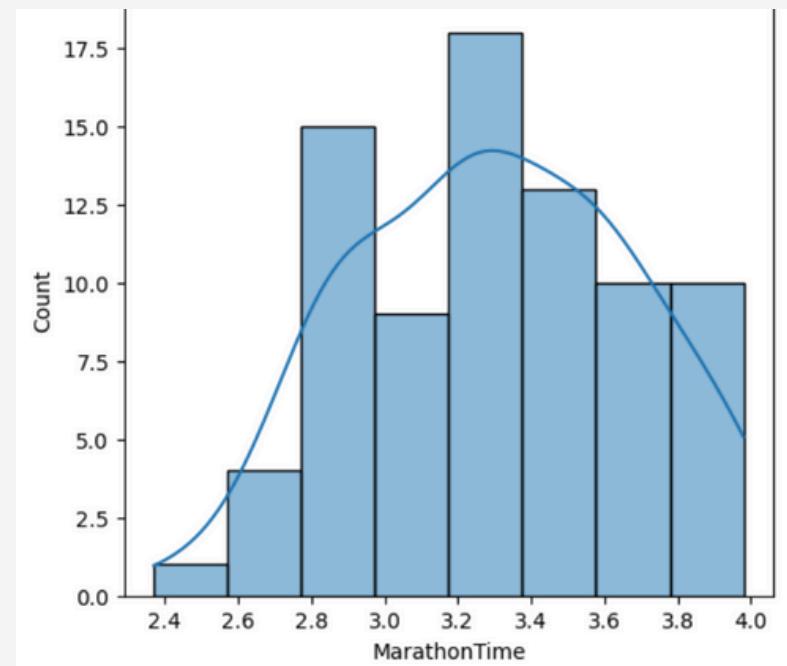
04

RUNNERS WITH LOWER  
TRAINING SPEED VALUES  
TEND TO PERFORM  
BETTER IN MARATHONS

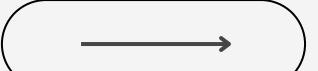
04

# WHAT & HOW DID WE ANALYZE?

- Data Preparation & Validation
- Data Transformation
- Data Analysis



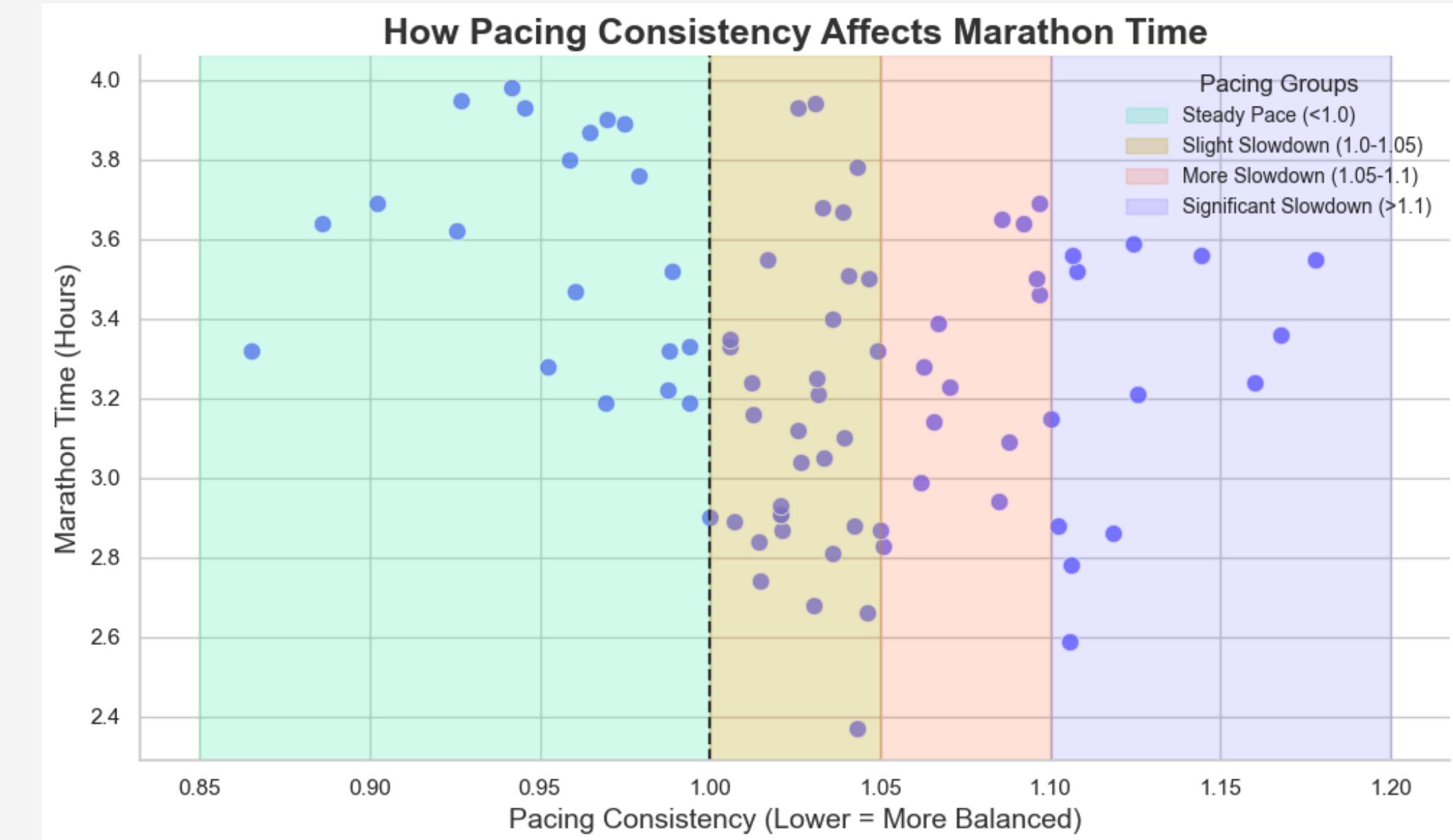
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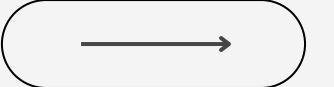
# KEY FINDINGS I

## Pacing strategy matters

Runners who experienced minimal slowdowns in the second half performed better overall



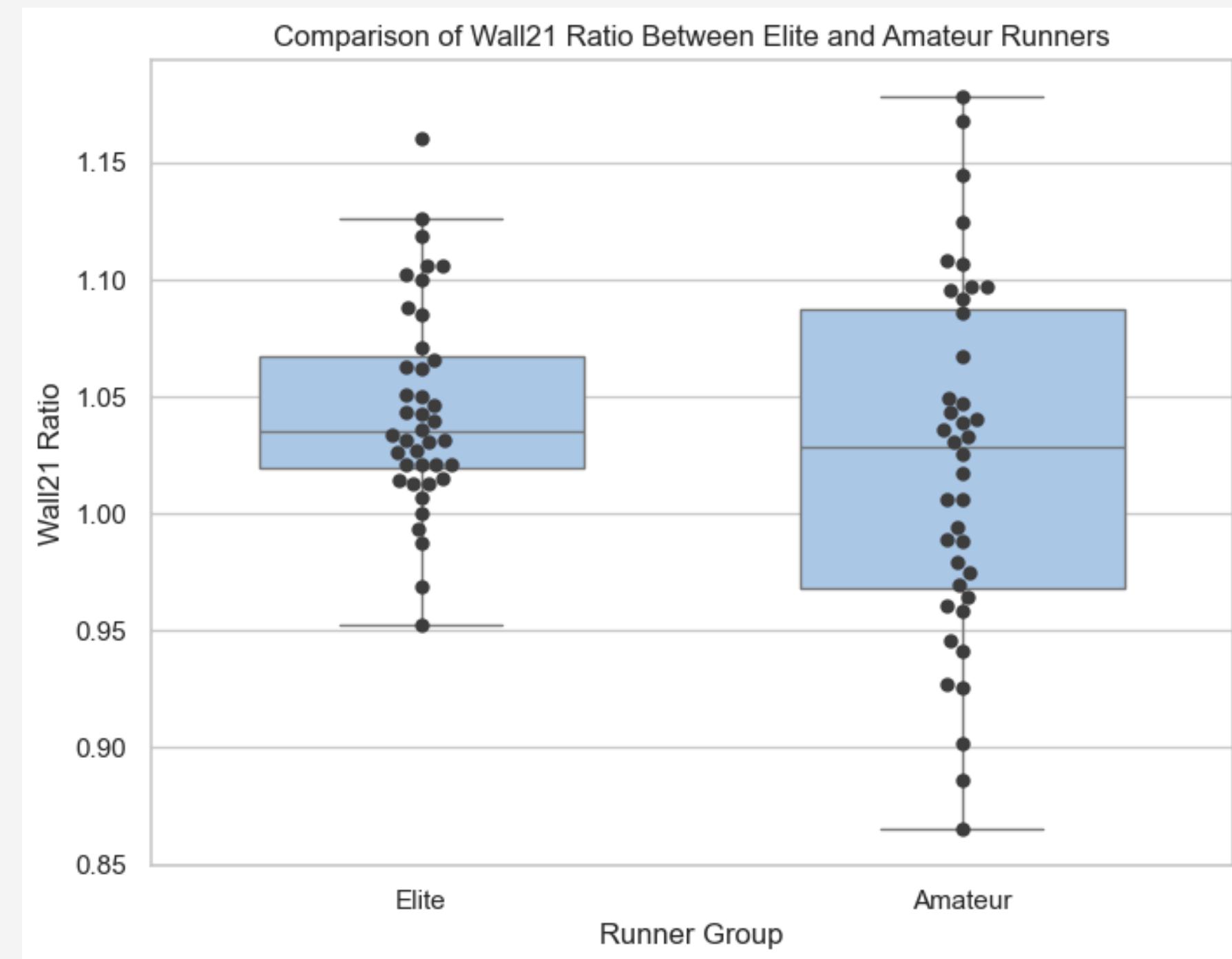
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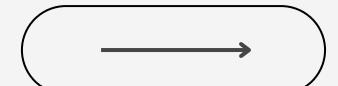
## KEY FINDINGS II

**Elite runners excel at pacing, running evenly the 1st and 2d parts of Marathon**

Experience makes it perfect!



07

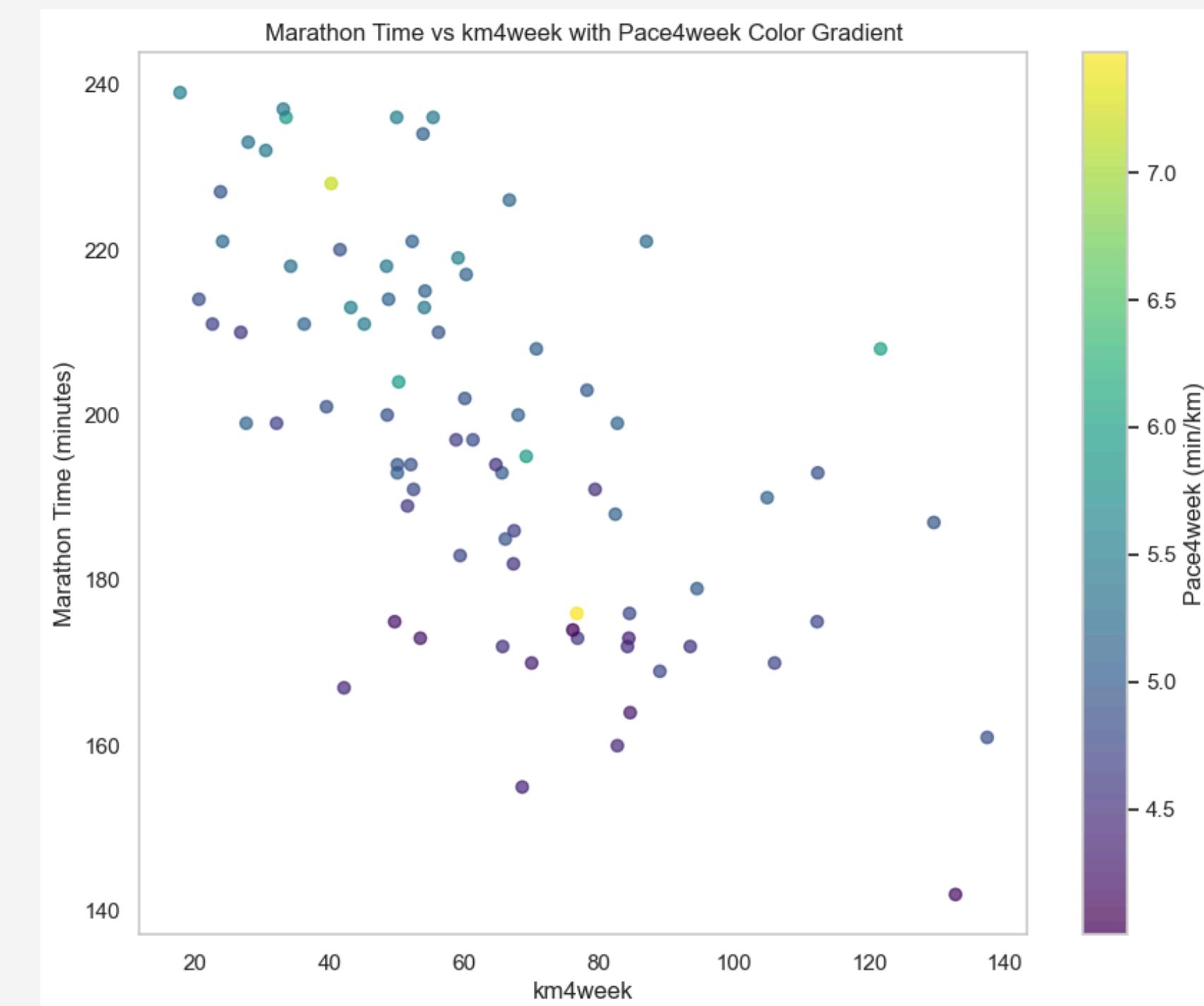


# KEY FINDINGS III

## Training kms matter

Weekly mileage and training pace before the marathon emerged as the most significant predictors of faster marathon times:

- Every extra 10 km/week shaved ~4 minutes off the finish time.



# RECOMMENDATIONS

08

- Target increasing km/week volume of training with balanced speed work.
- Aim for a Wall21 Ratio between 1.00–1.05 on race day.
- Don't forget to enjoy the process!



# NEXT STEPS

09



- Expand analysis to larger datasets or other marathons.
- Explore the impact of weather, nutrition, and terrain.

# THANK YOU!

