

Supplementary Figures

Change in Glucose From Start to End of Exercise

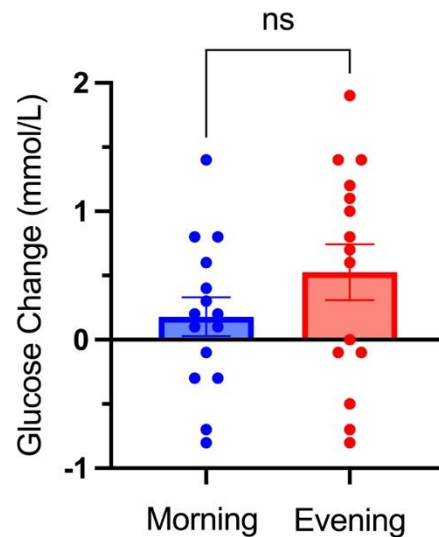


Figure A1. Change in Glucose from Start to End of Exercise in Morning vs Evening Sessions.

Bar graph showing the average change in blood glucose (mmol/L) during 30-minute moderate-intensity exercise, comparing morning and evening conditions. Each point represents one session.

No significant difference in glucose change was found between morning and evening exercise sessions ($p > 0.05$). This suggests that the time of day did not have a significant impact on blood glucose responses during exercise.

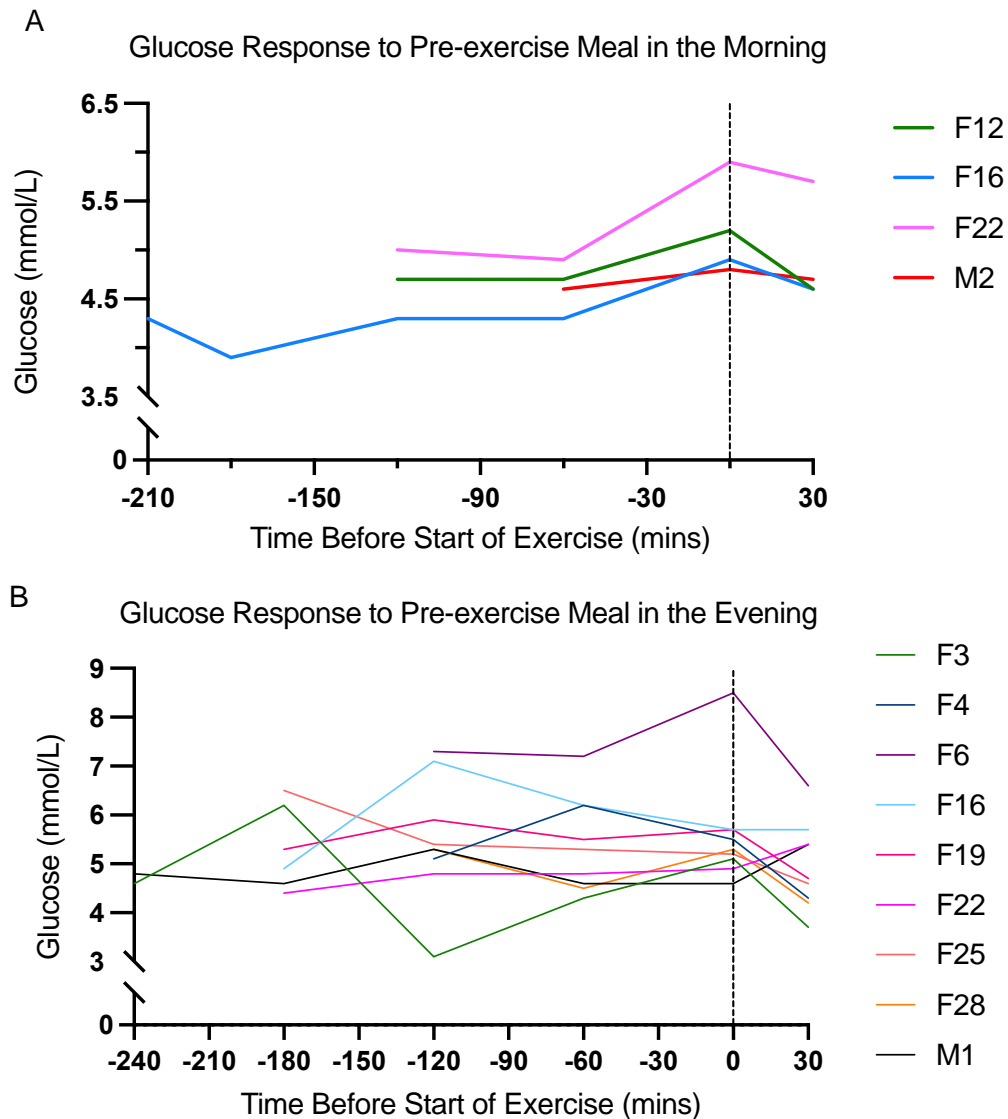


Figure A2. Individual blood glucose responses to pre-exercise meals during morning (A) and evening (B) sessions.

Glucose concentrations (mmol/L) were tracked for selected participants from up to 3.5 hours before morning exercise and up to 4 hours before evening exercise. Each line represents an individual, with time (mins) plotted relative to the start of exercise (dashed line). The shaded area indicates the post-meal period leading up to exercise.

The graphs show that glucose responses to pre-exercise meals were quite different between individuals. Some participants had noticeable rises in glucose after eating, while others stayed more stable. There was not a clear pattern that applied to everyone, which suggests that the way people respond to meals before exercise can vary a lot depending on individual factors, no matter if the session was in the morning or evening.

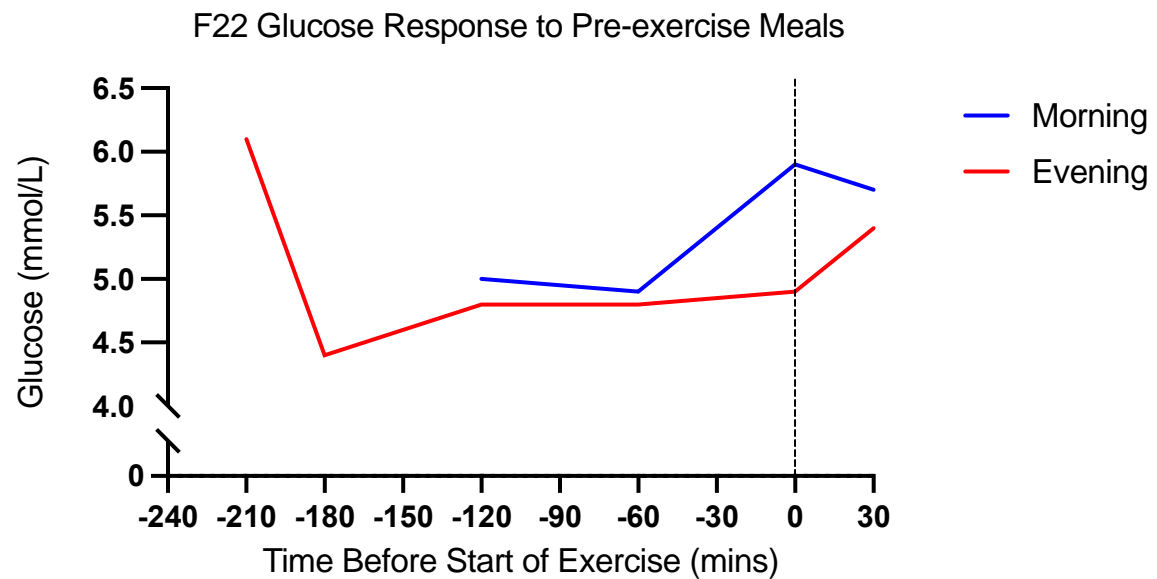


Figure A3 shows the glucose response of participant F22 to pre-exercise meals in both morning and evening sessions.

Glucose concentrations (mmol/L) were recorded for up to 4 hours before the start of exercise. The blue line represents the morning session, and the red line shows the evening session. Time is plotted relative to the start of exercise (dashed line at 0 min).

F22 was the only participant who had a meal before both sessions and was not fasted. In the evening session, glucose decreased right after the meal was eaten, then gradually increased before exercise. In the morning, glucose rose more steadily leading into the session. No analysis was done on this individual data, but it shows how glucose responses to food can vary depending on the time of day.

Impact of Pre-Exercise Meal Caloric Intake on Blood Glucose from Start to End of Exercise

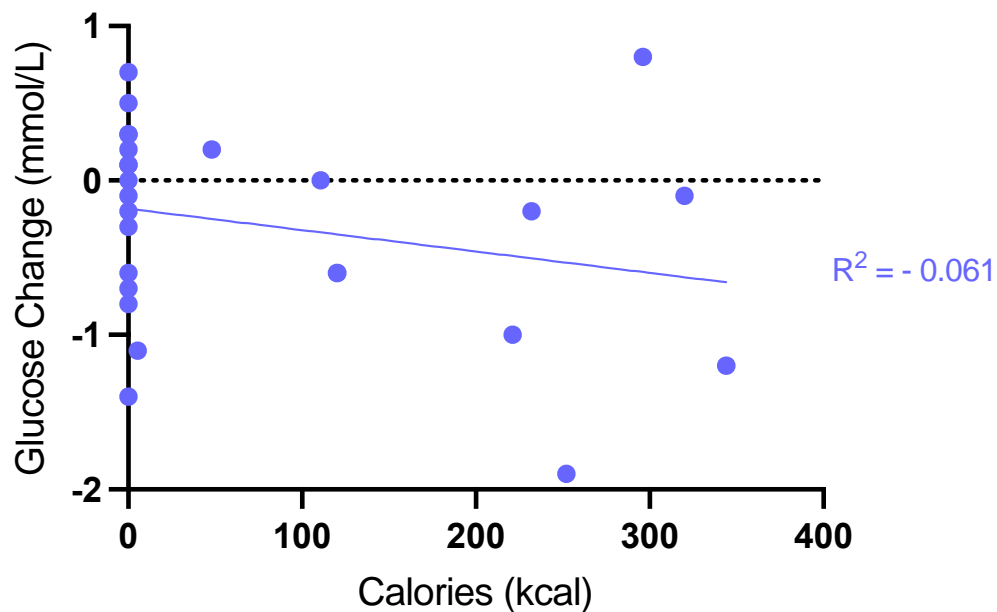


Figure A4 shows a scatterplot of the relationship between pre-exercise meal calories (kcal) and the change in blood glucose (mmol/L) from the start to end of exercise.

Each point represents one trial. A simple linear regression line was added to the graph for visualisation, while Pearson's correlation was used to test for any association.

There was no significant relationship between the number of calories consumed before exercise and the change in glucose during exercise ($r = -0.061$, $p = 0.22$). The regression line was included for visualisation only, but overall, total energy intake did not explain the variation in glucose responses.

Sleep Quality and Pre-Exercise Blood Glucose Levels

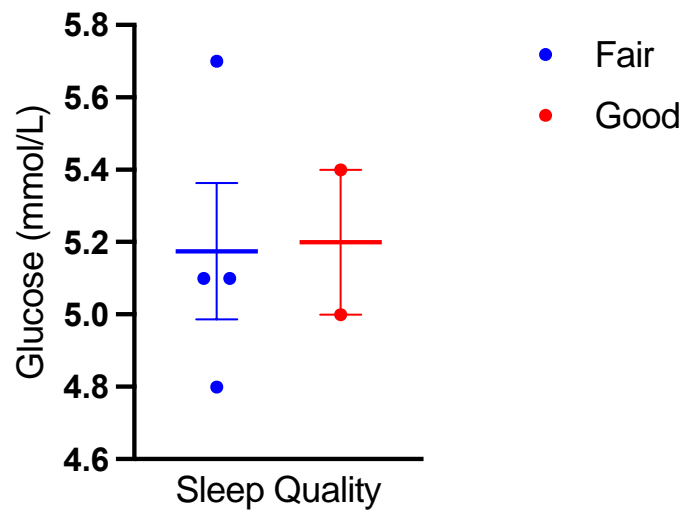


Figure A5. Pre-Exercise Glucose Levels by Self-Reported Sleep Quality

Bar graph comparing average pre-exercise blood glucose between participants who reported “fair” and “good” sleep quality.