

FASTING AND SPORTS

AL SADIQ SCHOOL
SCIENCE CONFERENCE
22ND APRIL 2026

RIDHA, HAIDER, AMEER, ALI

BACKGROUND RESEARCH

Intermittent fasting, including periods such as a 12-hour fast, is a popular diet strategy often used for weight loss. Research suggests that it can improve body composition by reducing fat while maintaining muscle mass. Studies investigating its impact on sports performance show that fasting does not significantly reduce physical ability and may even improve aspects like power output. However, evidence is mixed and depends on factors such as the length of the fast and the type of activity performed. There is limited specific research on how a 12-hour fast affects accuracy in low-intensity sports, so further investigation is needed to determine its effects

Reference:

Conde-Pipó, J., Mora-Fernandez, A., Martinez-Bebia, M., Gimenez-Blasi, N., Lopez-Moro, A., Latorre, J.A., Almendros-Ruiz, A., Requena, B. and Mariscal-Arcas, M. (2024) *Intermittent fasting: does it affect sports performance? A systematic review*. *Nutrients*, 16(1), Article 56.

HYPOTHESIS

- Fasting will improve reaction time by increasing focus in individuals during less strenuous sports.

VARIABLES

Independent variable:

- Whether the participant is in a fed state or is in a 12-hour fast.

Dependent variables:

1. Reaction time (how quickly the participant responds)
2. Number of successful ball bounces in 1 minute off a table tennis racket (level of coordination)

Controlled variables:

- **Same participants used before and after fasting** removes differences between individuals in our results and conclusion
- **Same equipment:** avoids measurement variation
- **Duration task was completed in (1-minute test for coordination):** ensures results are comparable
- Time of day the task was completed.
- **Same number of trials and averaging method** keeps data processing consistent
- **Same software and hardware used:** removes systematic errors

- **METHOD** - 2 TESTS WERE PERFORMED UNDER TWO CONDITIONS FASTING AND NORMAL:
-

Method 1

Pupils completed an online reaction time test completed during a fasting day then again during a normal day:

- Each try was repeated three times (excluding practice rounds) to eliminate anomalous results
- A total of 5 pupils took part in both methods.

Method 2

Pupils bounced a table tennis ball on a table tennis racket as many times as possible in 1 minute.

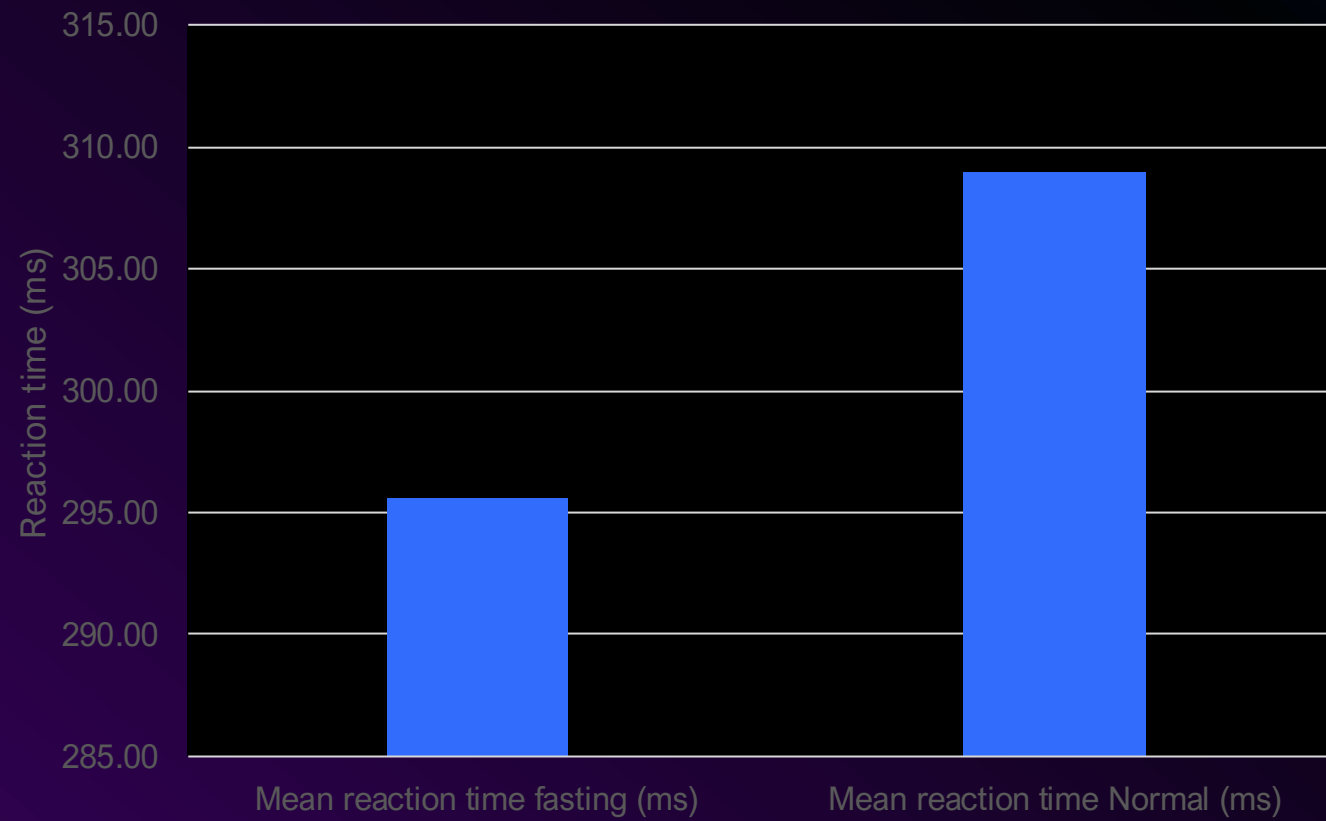
RESULTS TABLE

This table is for the online
reaction time test

Green=Fastest
Red=Slowest

Names	Avg reaction time fasting (ms)	Avg reaction time Normal (ms)
Ameer	294	297
Ali	309	341
Haider	310	331
Ridha	293	292
Abbas	272	284

DOES FASTING IMPROVE REACTION TIME?



RESULTS-ANALYSIS

Overall, the data shows a **general decrease in reaction time after fasting**, meaning performance became faster.

- **4 out of 5 participants** had higher reaction times during a normal day, showing reduced reaction speed.
- Only **1 participant** showed a **slight improvement** (293 → 292), which is a minor change and could be due to random variation.
- **Another participant** shows the largest decline (**+32 ms**), suggesting fasting improved overall performance.

Mean trend:

If you calculate the mean, the **mean reaction time** decreases during fasting, supporting the idea that fasting positively affects reaction speed. The results suggest that a 12-hour fast generally speeds up reaction time. However, the small sample size and one anomalous result mean the conclusion isn't definitive.

RESULTS TABLE

This table is for the ping pong test

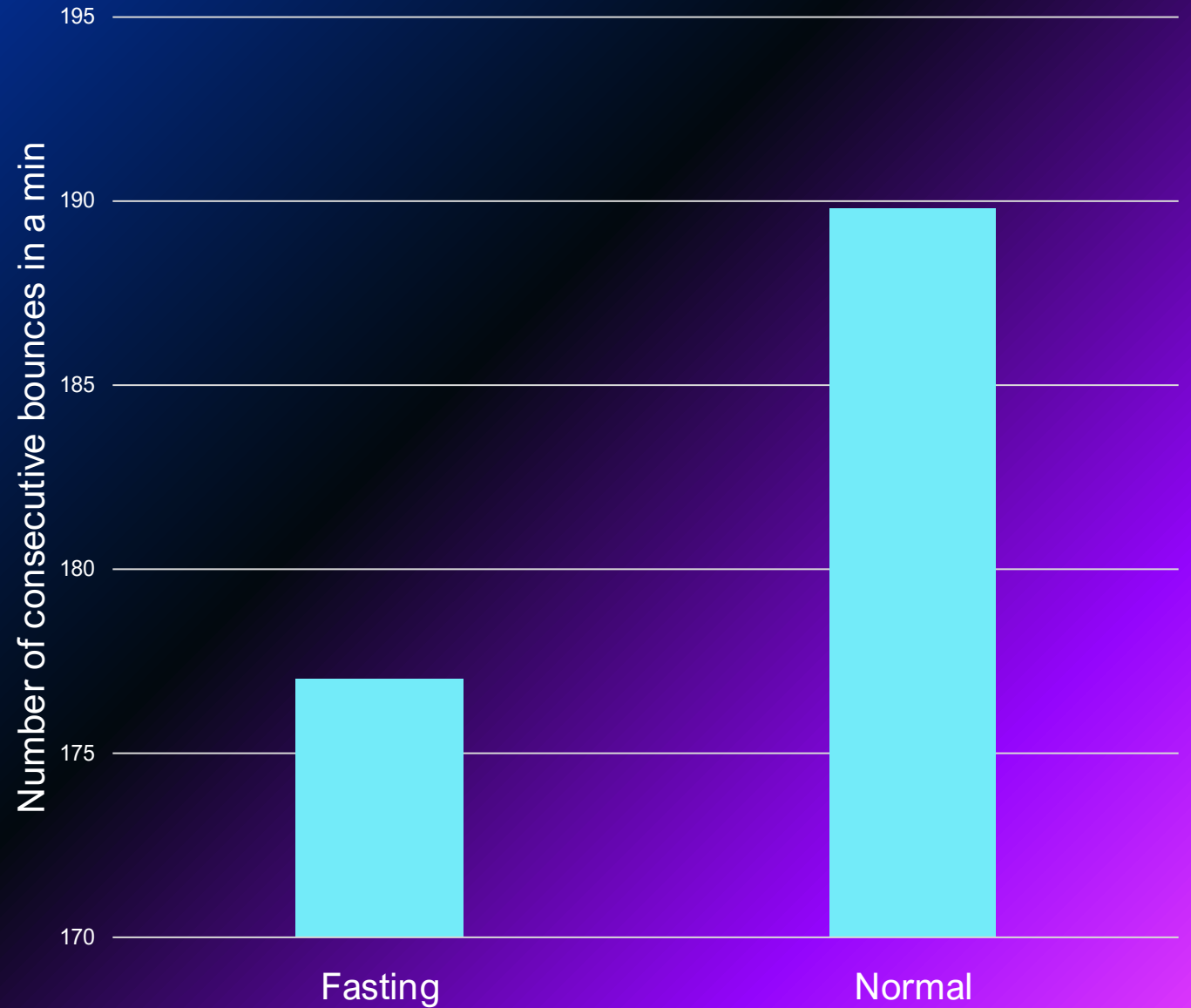
Green=more bounces

Red=less bounces

Names	Avg bounces with fast (in 1 minute)	Avg bounces post fast (in 1 minute)
Ameer	147	165
Ali	196	179
Haider	198	220
Ridha	166	181
Abbas	178	204

A GRAPH TO SHOW

The mean bounce rate in 1 minute



RESULTS-ANALYSIS

- **Results analysis:** The results show a **general improvement in performance under normal conditions**, meaning coordination increased for most participants.
- **4 out of 5 participants:** achieved **more bounces in the normal tries**, indicating better motor control.
- Only **1 participant** showed a **decrease** (196 → 179), suggesting a decline in performance.

Mean trend

The mean number of bounces increases when not fasting, suggesting an overall improvement in coordination.

Unlike reaction time, these results suggest that a 12-hour fast may have a negative effect on coordination and focus for most individuals.

CONCLUSION

Reaction time is positively affected by fasting however overall performance is affected to the point it has a negative effect on sporting ability



INTERMITTENT FASTING FOR ATHLETES
CAN IT IMPROVE PERFORMANCE?

APPLICATION

- Fasting may be effective at training the body to react to smaller more precise movements however be unviable during actual physical activity. However, e-sports will be viable for this strategy.
- Fasting also has many other benefits and so does still have a key place in sports and athletics in general

