

# Calculation of Basketball Scoring Probabilities

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# Agenda

## Results of basketball scoring calculations

- Overall Shooting Statistics
- Probabilities
- Conditional Probabilities - Future
- Conditional Probabilities - Retrospective

# Overall Shooting Statistics

- Overall probability of a make: 49.02%
- Overall probability of a miss: 50.98%
- Overall proportion of three-pointers: 54.81%
- Overall proportion of two-pointers: 45.19%

# Probabilities

- Probability of Steph making 3 of the next 4 shots: 24.02%
- Probability that 4 of the next 5 shots are three-pointers: 20.39%

## **Assumptions:**

- The type of shot (two-pointer or three-pointer) is independent of whether the shot is made.
- The probability of making a shot applies equally to both two-pointers and three-pointer.

# Conditional Probabilities - Future

- If the next shot is a three-pointer:
  - Probability he makes it: 41.86%
  - Probability it was taken while his team had the lead: 49.36%
- If the next shot is a two-pointer:
  - Probability he makes it: 57.72%
  - Probability it was taken while his team had the lead: 51.54%

# Conditional Probabilities - Retrospective

If Steph just made a shot:

- Probability it was a three-pointer: 46.80%
- Probability it was a two-pointer: 53.20%
- Probability his team was in the lead: 56.19%