



INSIGHTS

Mock Jurors' Evaluation of Firearm Examiner Testimony

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OVERVIEW

Traditionally, firearm and toolmark experts have testified that a weapon leaves “unique” marks on bullets and casings permitting a “source identification” conclusion to be made. While scientific organizations have called this sort of categorical assertion into question, jurors still place a great deal of weight on a firearms expert’s testimony.

To examine the weight jurors place on these testimonies, researchers conducted two studies: the first evaluated if using more cautious language influenced jurors’ opinions on expert testimony, and the second measured if cross-examination altered these opinions.

THE GOALS

The team tested four hypotheses in these studies:

- 1 Jurors will accord significant weight to a testimony that declares a categorical “match” between two casings.
- 2 Jurors’ opinions will not be changed by more cautious language in a firearms expert testimony.
- 3 Guilty verdicts would only be lowered by using the most cautious language (i.e., “cannot exclude the gun”).
- 4 Cross-examination would lower guilty verdicts depending on the specific language used.

THE STUDIES

STUDY 1:

1,420 participants read a synopsis of a criminal case which included the testimony of a firearms expert. The expert gave one of seven specifically worded conclusions, ranging from a “simple match,” to a more cautious “reasonable degree of ballistic certainty,” to “cannot be excluded.”

The participants then decided whether they would convict based on the testimony.

STUDY 2:

1,260 participants were given the same synopsis, with two important changes:

- The expert’s testimony had three possible conclusions (inconclusive, a conclusive match, or a cautious “cannot be excluded”) rather than seven.
 - Some participants also heard cross-examination of the firearms expert.
- The participants again decided whether they would convict the defendant and rated the testimony’s credibility.



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RESULTS

STUDY 1:

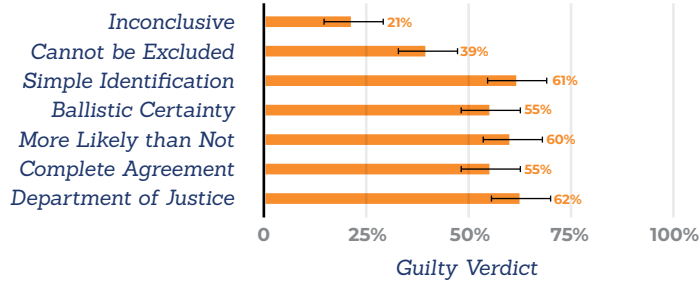


Figure 1. Proportion of guilty verdicts with 95% confidence intervals.

- Compared to an inconclusive result, finding a “match” tripled the rate of guilty verdicts. Variations to how the “match” is described did not affect verdicts.
- The sole exception is when the match was described as “...the defendant’s gun ‘cannot be excluded’ as the source.” Then the rate of guilty verdicts doubled — instead of tripled — compared to an inconclusive result.

STUDY 2:

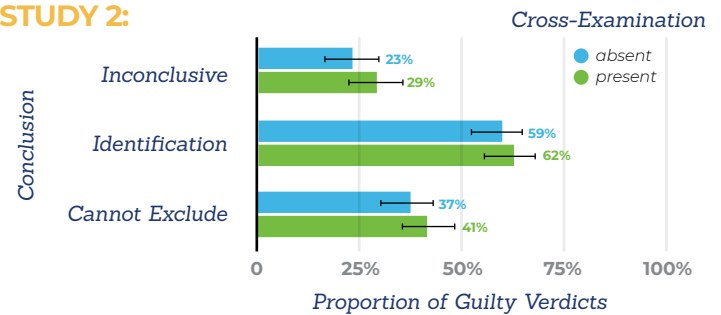


Figure 2. Proportion of guilty verdicts (with 95% confidence intervals) in each experimental condition.

- Cross-examination did not help jurors to consistently discount firearms conclusions. This is consistent with prior work showing mixed effects of cross-examination on jury perceptions of strength of evidence.
- ‘Cannot exclude’ and ‘identification’ conclusions lead to significantly more “guilty” convictions than the “inconclusive” condition.

FOCUS ON THE FUTURE

- While it is unfortunate that using more cautious language does not affect jurors’ decisions, there is no downside to implementing it because it can prevent misleading or overstated conclusions.
- Future studies should provide video testimony and discussion to better mimic a real-world trial.
- The methods that firearms experts use have not been adequately tested, so jurors cannot accurately judge the strength of the evidence or the expert’s proficiency. This requires further research into the validity and reliability of firearms comparison methods.

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- Read the Insight covering **jury evaluation of forensic evidence in fingerprint and voiceprint cases**.
- Watch the webinar discussing **errors rates for firearms examiners**.

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