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# Penalty kick or not? Differences in the interpretation of handball incidents in professional association football

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## Key Findings

- Referees showed the highest level of agreement with UEFA guidelines among all stakeholder groups.
- However, referees were less strict than UEFA (awarded fewer penalty kicks).
- Coaches and players were even less strict than referees.
- Referees reasoned their decisions significantly more often with the *Naturalness of the arm position* compared to coaches and players.
- Coaches and players reasoned their decisions significantly more often with the *Avoidability of the handball* and the *Impact of the incident* (e.g. preventing a goal or influencing the ball's trajectory) compared to referees.

## Introduction

Handball incidents in the penalty area remain one of the most controversial topics in football. Given that football is a low-scoring game and penalty kicks have a high conversion probability (.76 expected goals), these decisions are frequently match-deciding. Even experts often disagree on whether a handball is punishable, facilitated by the wording of the law which leaves room for interpretation regarding criteria such as *Intent* and making the body "unnaturally bigger". The research article by Bauch et al. (2026) investigates the root causes of these divergent interpretations and analyses systematic differences in decision-making among key stakeholders of the game.

## Study Design and Methodology

In two consecutive studies, participants evaluated video scenes of handball incidents in the penalty area.

### Study 1 (Referees):

154 referees active in German men's professional football (Bundesliga, 2. Bundesliga, 3. Liga) participated. This included main referees, assistant referees, VARs and observers. They evaluated 30 video scenes.

### Study 2 (Comparison with Coaches and Players):

31 professional coaches and 46 professional players evaluated a subset of 18 scenes from the first study. Their results were compared with those of the referees.

## Methodology

Participants answered three questions for each scene:

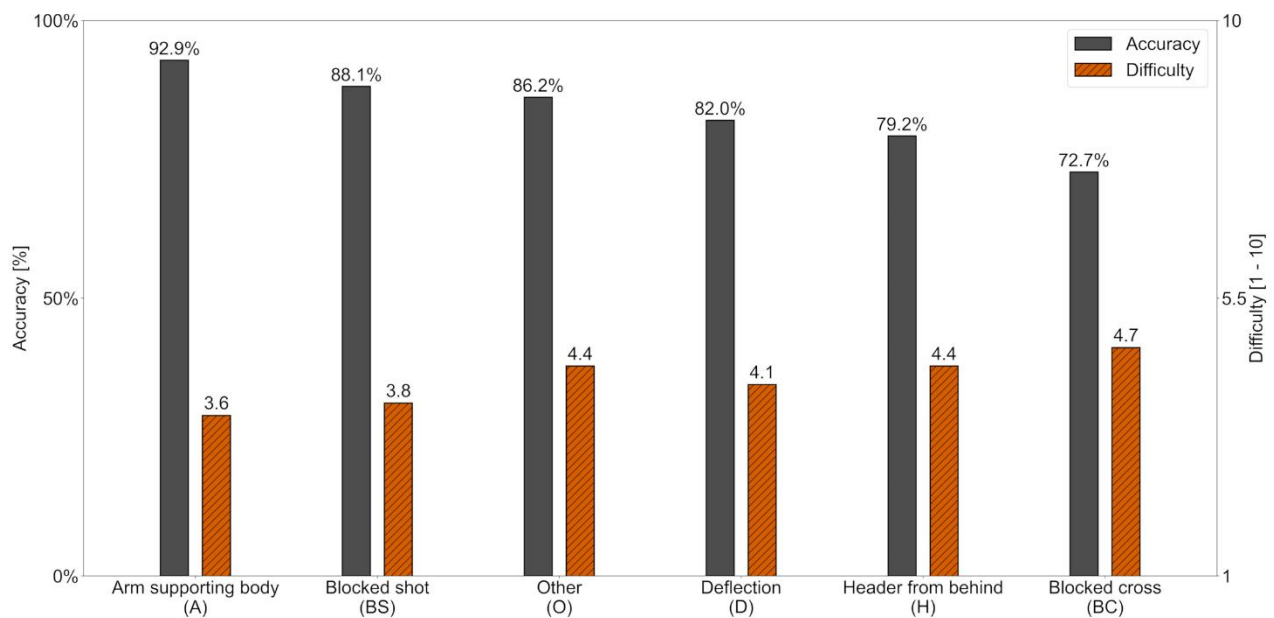
1. Is the handball punishable or not punishable according to the Laws of the Game?
2. What was the primary reason for your decision?
3. How difficult was the decision?

UEFA's official interpretations served as the reference for the correct decision. The scenes were selected so that, according to UEFA guidelines, 50% were punishable and 50% were not punishable, although participants were unaware of this distribution. To avoid potential bias, incidents were selected from international matches in which none of the participants were personally involved. Participants viewed replays and slow-motion footage without commentary to ensure informed decisions, and the scenes were presented to each participant in a randomised order.

## Results Study 1

Referees achieved a high level of *Accuracy* (alignment with UEFA) of 84.0%. Nevertheless, their *Strictness* (42.9%) was lower than the UEFA baseline (50%). This suggests that referees tend to let play continue in grey areas rather than intervening with a potentially match-deciding penalty decision.

*Accuracy* varied depending on the *Handball Category*. Categories with the highest *Accuracy* were perceived as the easiest, while those with the lowest *Accuracy* were rated as the most difficult. Referees were most accurate (92.9%) in the category *Arm supporting body*, whereas *Blocked cross* resulted in the lowest *Accuracy* (72.7%) and the highest perceived difficulty (see Figure 1).



**FIGURE 1 - ACCURACY AND DIFFICULTY OF HANDBALL CATEGORIES IN STUDY 1.**

## Results Study 2

Regarding the subset of 18 scenes used in Study 2, significant differences in Accuracy were found between the groups. Coaches (63.8%) and players (67.5%) deviated significantly more from the UEFA guidelines than referees (81.5%).

Practitioners (coaches and players) were considerably less strict. While referees awarded a penalty in 41.0% of cases, coaches did so in only 36.0% and players in 33.9%. This indicates that practitioners often perceive the current application of the law as too strict. Significant differences in decision-making were found in 11 out of 18 scenes.

A key finding is the divergence in *Reasoning* (see Figure 2):

- Referees focused on the written law and cited *Naturalness* significantly more often.
- Coaches and Players argued significantly more often based on context, specifically *Avoidability* and *Impact* of the handball incidents. Although not explicitly listed as criteria in the Laws of the Game, these factors appear relevant to their perception of the decision's adequacy.

This analysis comprises reasons for both, punishable and not punishable handball decisions.

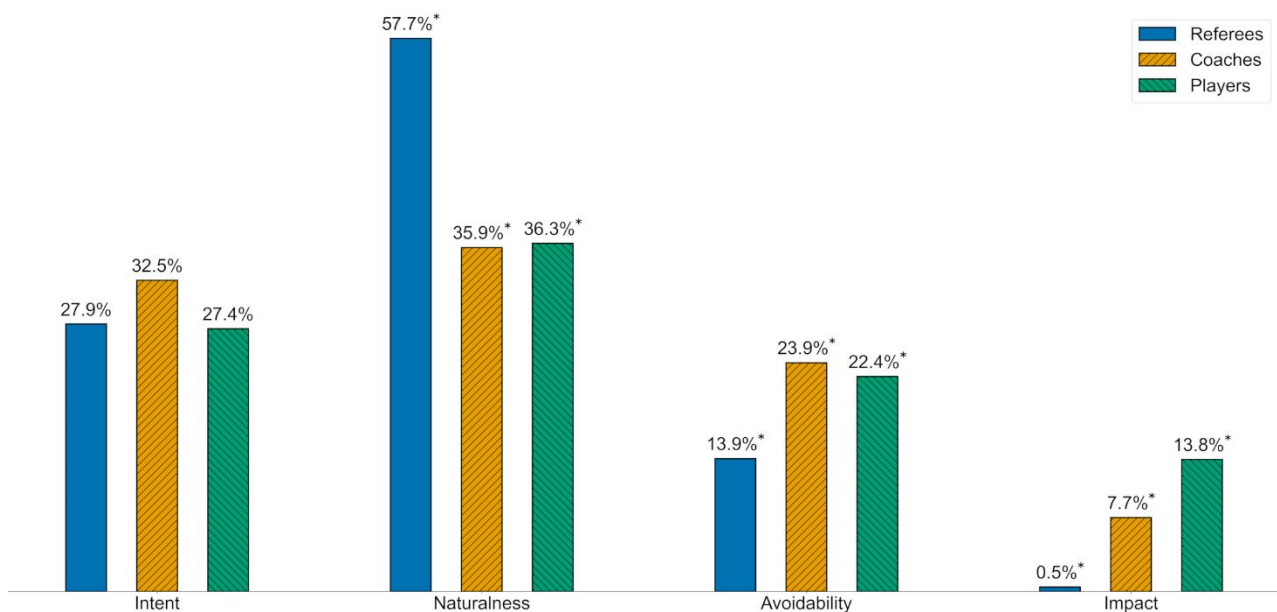


FIGURE 2 - REASONING BY STAKEHOLDERS.

## Conclusion and Practical Implications

The studies demonstrate that the controversy surrounding handball incidents is rooted less in refereeing errors than in diverging expectations. Even decisions that are technically correct according to the law frequently do not meet with approval. To increase acceptance, more objective criteria are needed. The guidelines for *Arm supporting body* work well in practice, and similar clear instructions are required for ambiguous situations in other *Handball Categories*. Furthermore, it should be discussed whether the criterion of *Impact* needs to be explicitly considered in the Laws of the Game to bridge the gap between technical accuracy and perceived fairness. An intensified exchange regarding these different perspectives is essential to establish a shared understanding among all stakeholders.