

Slow motion playback makes football referees harsher

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Football referees penalize situations more severely when watching them in slow motion compared to real time, according to a study published in the open access journal of the Psychonomic Society, *Cognitive Research*:

Principles and Implications.

Dr. Jochim Spitz, Prof. W. Helsen and colleagues at University of Leuven, Belgium, studied the response of 88 elite football referees to [video](#) clips of a foul warranting a yellow card.

The researchers found no significant difference in the accuracy of a [referee](#)'s decision about if a foul had occurred or not, with [slow-motion](#) videos (63% accurate) compared to the [real-time](#) videos (61% accurate). However, the judgement of intention or force behind a foul differed. More red cards were given by referees watching in slow motion compared to those watching real time video playbacks.

Dr. Spitz, corresponding author of the study, said: "Our results suggest that slow motion can increase the severity of a judgement of intention, making the difference between perceiving an action as careless (no card), reckless (yellow card) or with excessive force (red card). The finding that referees were more likely to make more severe decisions following slow motion replays, is an important consideration for developing guidelines for the implementation of VAR in football leagues worldwide."

The authors concluded that although slow motion playback could be a useful tool in assessing some decisions, such as off-side and determining the exact impact of a contact, it may not be the best tool for decisions that involve judging human behaviour and intention.

Dr. Spitz explained: "Slow motion video may make it clearer who initiated a foul, whether there actually was contact and whether a foul occurred either inside or outside the penalty area. However, judging human emotion, like intentionality is quite another story. It is also the reason why slow motion footage cannot be used anymore in the court room as it increases the perceived intent."

Dr. Spitz added: "This is the first time that the impact of slow motion video on [decision](#) making has been studied in sports referees and it is timely given the current debate on video assistant refereeing (VAR), which will be used in the World Cup."

To investigate the impact of viewing speeds on decisions made by referees, the authors showed 88 elite football referees from 5 European countries 60 [video clips](#) of foul situations from [football](#) matches in real time or slow motion. Two independent ex-international referees that are currently acting as refereeing experts determined the correct decisions as a point of reference and then the referees who took part in the study categorised the fouls as they would in a real match by awarding a yellow card, a [red card](#) or no card.

More information: Jochim Spitz et al, The impact of video speed on the decision-making process of sports officials, *Cognitive Research: Principles and Implications* (2018). [DOI: 10.1186/s41235-018-0105-8](https://doi.org/10.1186/s41235-018-0105-8)

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