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## **Deceptive actions bias responses and impair discriminability: Signal detection analysis of rugby sidesteps [Abstract]**

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## Deceptive actions bias responses and impair discriminability: Signal detection analysis of rugby sidesteps

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Researchers who have used the temporal occlusion paradigm to study responses to deceptive actions have focused on the time window in which players resolve deception, improving from low to high response accuracy (e.g., Brault, Bideau, Kulpa and Craig, 2012, *PLoS ONE*, 7(6): e37494). Remarkably, the window of time during which players become deceived has yet to be examined. In the present study we address this by examining both susceptibility to, and detection of, deception in rugby union players using signal detection analyses. High-skilled and low-skilled participants (19 per group) responded to 168 trials, showing a player 'cutting' left or right, with or without a deceptive sidestep. Physical responses were recorded using force plates and three-dimensional motion capture cameras. Each trial was occluded at one of seven time points relative to the footfall after the initial (genuine or fake) reorientation (deception window: -600ms to -300ms; resolution window: -300ms to 0ms). High-skilled ( $M = 0.40$ ) and low-skilled players ( $M = 0.39$ ) were found to be equally susceptible to deception ( $P = .62$ ,  $\eta_p^2 = .01$ ) but high-skilled players were significantly better at resolving deception ( $P = .004$ ,  $\eta_p^2 = .21$ ), indicated by better discriminability ( $P = .001$ ,  $\eta_p^2 = .25$ ), reduced bias toward judging actions to be genuine ( $P = .02$ ,  $\eta_p^2 = .14$ ), and earlier improvements in both these indices ( $P = .01$ ,  $\eta_p^2 = .12$ ). We conclude that experts are highly susceptible to deception but are able to respond more effectively than lesser-skilled players through earlier detection of deceptive intent.