D50 The Effect of Speed on Bloodstain Patterns Found on the Exterior of a Moving Vehicle

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After attending this presentation, attendees will learn about the minimum speed required for blood from a beating incident to exit a moving vehicle and spatter back onto its exterior.

This presentation will impact the forensic community and/or humanity by providing bloodstain pattern analysts and investigators reliable data on which they can base their interpretations or crime scene reconstructions.

When a patrol officer approached a vehicle on the side of the road, two of its occupants were standing outside claiming they got into a car accident while the third occupant lay dead in the front passenger seat. The vehicle sustained minor exterior damage; however, the observable bloodstain patterns on the exterior surface of the vehicle were inconsistent with the story. Although blood spatter interpretation has been described in vehicular crime scenes, the literature is lacking in studies illustrating blood escaping from a moving vehicle and subsequently spattering back onto the exterior frame of that vehicle. This study sought to determine the minimum speed at which blood resulting from a beating incident, would exit a moving vehicle and spatter back onto its exterior rear passenger window. A blood soaked sponge was positioned on the right scapula of a face down mannequin and placed in the front passenger seat of a sport utility vehicle (SUV). While the front passenger window was rolled down, the sponge was struck 3 times with a blunt force object while the vehicle traveled at 1 of its 5 variable speeds until the presence of blood spatter was noticeable on the rear passenger window of the SUV. Brown butcher paper covered the rear passenger window of the SUV and was used to capture the visible spatter, which was subsequently recorded and photographed. A total of 16 trials were completed, resulting in perceptible medium impact blood spatter at a minimum speed of 30 mph. This result was successfully repeated during three additional trials.

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