RESEARCH ARTICLE

Preliminary Evaluation of Bludgeon Head aka Spatter Head as a Technique To Demonstrate Impact Spatter from a Beating Mechanism

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Introduction

Various methods for the production of impact spatter as the result of blunt force to simulate beating events have been utilized in bloodstain pattern analysis training courses for many years. Since 1971 in the United States, MacDonell has utilized blood soaked sponges that were struck with various objects as well as modified rat traps that impacted a source of blood placed on the trap. In Canada, Laturnus utilized a hockey puck with blood placed in the concave surface of the puck that was then struck with a blunt object. These methods are widely accepted and currently utilized by many instructors in bloodstain pattern training courses throughout the world. These methods have also been utilized to reproduce impact spatter production in case work.

Innovative forensic models have been constructed for training of bloodstain pattern analysts and crime scene re-enactments. Bludgeon Head aka Spatter Head is manufactured by Andre Anyon at www.forensicbody.com The head is constructed of a proprietary formula of high strength casting plaster and a custom blend wax formula utilized to create a hollow hard wax shell which is pre-filled with pig's blood. The shells are constructed with pegs that fit into holes in the head completing a fully formed anatomical head. Spatter Head models are available in both an upright and side orientation. Multiple shells can be used without destruction of the plaster base head (Figures 1 and 2).

This evaluation concentrated on striking a side oriented model with a blunt object to determine whether impact spatter can be produced in a realistic setting that would be suitable for demonstration and teaching purposes in bloodstain pattern analysis classes with an eye for its use in case specific issues.

Figure 1. Spatter Head with blood-filled shell.

Figure 2. Underside of shell with pegs.

Methodology

An outdoor location was utilized with 36” x 30” white foam boards set up in a corner with a blue surgical drape covering the remaining walls and brick floor surface. “Spatter Head” was set up on a pedestal with the top of the head 17.5” above the surface. The head was positioned 23” from the south wall and 23” from the west wall. A fish bat 16.5” in length was used as the blunt weapon to strike the head (Figure 3).

Figure 3. Position of Spatter Head prior to striking with fish bat in experiment 1.

Two experiments were performed. The head was struck a total of six times in each experiment with the sequential blows videotaped and photographed. For the second experiment with a second shell Spatter Head was set up on a pedestal with the top of the head 18.5” above the surface. The head was positioned 50” from the south wall and 50” from the west wall. For the second experiment, a T-shirt moist with perspiration and a plastic water bottle were positioned as additional targets for the spatter.

Figure 4. Impact spatter produced in experiment 1.

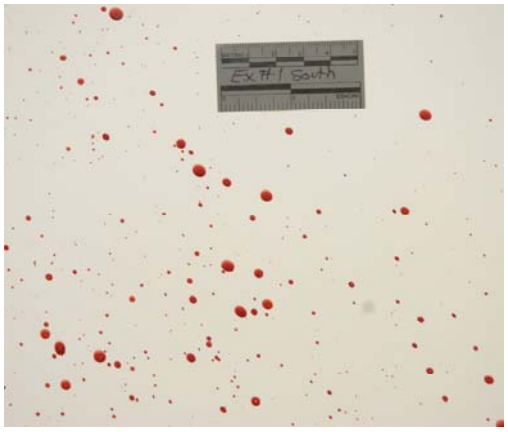

Figure 5. Close view of impact spatter from south wall in experiment 1.

Figure 6. Close view of impact spatter on west wall in experiment 1.

Figure 7. Impact of fish bat on Spatter Head showing expulsion of blood in experiment 2.

Figure 8. Impact spatter produced from blow Struck in Experiment 2.

Figure 9. Diffused appearance of impact spatter on perspiration dampened T-shirt.

Results and Discussion

No impact spatter was produced with the first blow in experiments 1 and 2 but subsequent blows produced increasing amounts of spatter onto the white foam boards and adjacent areas. An abundance of typical impact spatter stains were produced in addition to many larger stains that exhibited downward flow patterns due to the volume of blood that was available for impact when the shell containing blood was ruptured. This was more evident in experiment 2 when the shell eventually was displaced from the head after several impacts. The target consisting of the perspiration dampened T-shirt demonstrated a good example of the diffusion of the spatter impacting a moist surface.

Conclusions

Bludgeon Head aka Spatter Head provides a realistic target for the production of impact spatter and is in the opinion of the authors an excellent tool for demonstration and teaching purposes. The head is easy to set up and only requires a quick rinsing and replacement of the blood containing shell for repetitive use. The shells should be refrigerated when storing and have an indefinite shelf life. It is recommended that prior to use that they be allowed to achieve ambient temperature.

Modification of the volume of blood contained within the shell responsible for many of the larger stains when exposed should be explored either by reducing the volume or adding a matrix within the shell that would reduce large volume expulsion of blood. It was noted that some of the stains contained air bubbles which is likely a function of the shell and agitation of the blood volume.

The bloodstains on the Spatter Head were difficult to remove completely. Soaking in a chlorinated solution proved to be satisfactory. It is recommended that the head be coated with a material that would facilitate easier removal of residual bloodstains.

Striking Spatter Head easily distributes impact spatter over a wide area and thus numerous surface textures can be spattered for comparative surface texture studies. The use of Spatter Head for the replication of case specific issues has good potential and will be the subject of future experimentation. Ideas and suggestions are welcome.

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