



### **B126 How the Interpretation of Blood Spatter Evidence Can Be Affected by Varying Methods of Measuring Singular Blood Drop Stains**

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The educational objective of this study is to learn how angle of impact measurements of blood drops can vary depending on the techniques used and the minute differences in measurements that may be obtained by other investigators or examiners.

This study will impact the forensic science community by helping to keep blood spatter examiners aware that the method of measuring blood drops and the person performing the measurements can have an effect on the final calculation of the angle of impact.

The purpose of this study will be to further understand how the accuracy of measuring a blood drop stain can affect the way it is interpreted by the investigator or examiner. Certain techniques normally used for measuring and interpreting blood drop stains will be tested in order to determine how the results may vary from depending on how the measurements are acquired.

When trying to determine the angle of impact of a blood drop onto a surface, the inverse sine of the length to width ratio of the blood drop is used. When measuring these blood drop stains, examiners may use a variety of tools, including a ruler, caliper, or micrometer. However, the measurements acquired of a single drop of blood may differ among the examiners and which tool or method that he or she uses. These differences can range in tenths, hundredths, or thousandths or a millimeter. This study will show how much the angle of impact can change with minute variations in length and width measurements.

In relation, making photocopies of blood drop stain photographs is a method used to enlarge the stains so that a more accurate measurement can be made on a larger scale. This study will discuss how the angle of impact measurement can differ with the photocopying method in comparison to measuring the original photograph. Observations will be made to see if any distortion of the original image is experienced during this process and if these distortions have any effect on the angle of impact determination.

Regarding the angle of impact, it is assumed that blood drops have a linear trajectory path for short distances, much like a projectile from a firearm. Part of this study will concentrate on the volume, size, and initial velocities of various blood drops to see if a non-linear trajectory path can have an effect on the interpretation of blood stain measurements.

**Blood, Spatter, Trajectory**