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Determination of Fractal Dimension of Blood Spatter Patterns

A fractal is a rough or fragmented geometric shape that can be split into parts, and each would be a reduced size copy of the whole. This property is called self-similarity and because of it they are infinitely complex. Blood pattern analysis is a specialty in the field of forensic science. Its results can provide evidence in an investigation that could be very useful. It was hypothesized that if the distance and the different angles of the spatter impact affects fractal dimension in the blood spatter, then the blood spatter could be analyzed using the fractal dimension to calculate distance and angle of impact. A paper was placed on a hard surface and shot with a paintball gun at different distances at a 90 degree angle. This was outlined and put into fractal dimension software to be analyzed. A paper was then shot at different angles from four feet at 135 and 45 degrees, was outlined, and put into the fractal dimension software to be analyzed. It was found that the hypothesis was rejected. There was no pattern seen in the relationship between distance and fractal dimension. There was an increase in fractal dimension from 45 to 135 degrees. This could show a potential relationship, that as angle increases so does the fractal dimension, between angle of impact and fractal dimension.