Recognition of Bloodstain Patterns Notes
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Forensic tool used to better understand what took place and what could not have taken place in a crime scene

May assist in:
- -apprehending suspect
- -corroborate a witness's statement
- -interrogating suspects
- -reconstruction of past events
- -exonerate accused

History-Bloodstain Evidence
1514-First used in London trial
1895-Dr. Piotrowski-first extensive study
1939-Dr. Balthazard-first study on spatter
1971-Herbert MacDonell-recreated bloodstains observed at crime scenes and established first training program

Properties of Human Blood

-held together by strong cohesive molecular forces which create a surface tension
-blood drop in air is spheroid (not teardropped) because of surface tension
-volume of a passive drop of blood depends on type of surface and surface area from which it drops
  (drops from the tip of a sharp knife will be much lower in volume than from a fingertip)
-average drop of blood contains .05 ml
-viscosity-mutual attraction of the molecules of blood(more viscous a fluid is, more slowly it flows)

-bloodstain (from free-falling drops of blood) diameter directly correlates with increase in height
  -maximum height is 7 ft where terminal velocity is reached
  -not accurate in determining exact distance since original volume is not known

Target Surface
Hard, non-porous, smooth
-very little splatter (ex. clean glass, smooth tile)
Rough texture (ruptures surface tension)
-significant amount of spatter (ex. wood, concrete)

Size, Shape, Directionality
Direction of travel -determined by narrow end of elongated bloodstain
Point of convergence - established by drawing straight lines through long axes of bloodstains (2 dimensional; x and y axis)
Area of Origin-location of blood source in a three dimensional perspective

-determined by extending 90 degrees up (z axis) from point of convergence
-always higher than the actual origin(gravity)

Round bloodstain-results from 90 degree angle of impact
Elliptical bloodstain-results from angle less than 90 degrees

Angle of impact-determined by using following calculation:

$$\frac{\text{Width of bloodstain}}{\text{Length of bloodstain}} = \sin \text{angle of impact}$$