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Investigation of the Drying Times of Blood under Different Environmental Conditions and on Different Fabrics and the Transfer of Blood at Different Times of the Drying Process

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Abstract : The research investigates the effects of temperature, humidity, wind speed, and fabric composition on the drying times of blood and assesses the degree of blood transfer that can occur during the drying process. An assortment of fabrics, of different composition and thicknesses, were collected and stained using two blood volumes and exposed to varying environmental conditions. The conclusion reached was that temperature, humidity, wind speed, and fabric thickness do have an effect on drying times. An increase in temperature and wind speed results in a decrease in drying times while an increase in fabric thickness and humidity extended the drying times of blood under similar conditions. Transfer experimentation utilized three donor fabrics, 100% white cotton, 100% acrylic, and 100% cotton denim, which were bloodstained using two blood volumes. The fabrics were subjected to both full and low/light force contact from the donor fabrics onto the recipient fabric, under different environmental conditions. Transfer times onto the 100% white cotton (recipient fabric) from all donor fabrics were shorter than the drying times observed. The intensities of the bloodstains decreased from high to low with time during the drying process. The degree of transfer at high, medium, and low intensities varied significantly between different materials and is dependent on the environmental conditions, fabric compositions, blood volumes, the type of contact (full or light force), and the drying times observed for the respective donor fabrics. These factors should be considered collectively and conservatively when assessing the time frame of secondary transfer in casework.

Keywords : blood, drying time, blood stain transfer, different environmental conditions, fabrics
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