Part II

Fibre Persistence

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Fibre Contact Traces - Distribution and Persistence

A. Fibre persistence on garments
B. Fibre persistence on skin
Fibre Contact Traces - Distribution and Persistence

Fibre distribution

Polyester fibre

Cotton fibre

Wool fibre
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5 Cotton T-Shirts

- Sweater Polyester
- Cord trousers Cotton
- Shirt Cotton
- Jeans Cotton
- Fleece Polyester
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Area of exposure
Fibre Contact Traces - Distribution and Persistence

Wind

Exposure time (days)

Wind (Beaufort)
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Wind speed maximum

Wind speed (m/s)

Exposure time (days)

1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41
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![Graph showing precipitation over exposure time](image-url)
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Cotton fibers
Recipient garment: T-shirt

Fiber persistence (numbers) vs. Exposure time (days)
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Wool fibers
Recipient garment: T-shirt

Exposure time (days)

Fiber persistence (numbers)
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Polyester fibers
Recipient garment: T-shirt

Exposure time (days)

Fiber persistence (numbers)
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Graph showing the distribution and persistence of fibres on a sweater over time. The graph plots fibre persistence (numbers) on the y-axis against exposure time (days) on the x-axis. Different materials are represented by different line types: CO, WO, and PES.
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Recipient garment: Fleece

- CO
- WO
- PES

Fiber persistence (numbers) vs. Exposure time (days)
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Recipient garment: Jeans

Exposure time (days)

Fiber persistence (numbers)

- CO
- WO
- PES
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Recipient garment: Corduroy

- CO
- WO
- PES

Fiber persistence (numbers) vs. Exposure time (days)
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Recipient garment: Shirt

Fiber persistence (numbers) vs. Exposure time (days)

- CO
- WO
- PES
B. Fibre persistence on skin
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Pig skin

Polyester fibre
Wool fibre
Cotton fibre
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![Bar chart showing the distribution and persistence of fibre contact traces under different wind conditions. The x-axis represents exposure time (days), and the y-axis represents wind (Beaufort) intensity. The chart displays bars for each day, with varying heights indicating the wind intensity.]
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Wind speed maximum

Exposure time (days)

Wind speed (m x s\(^{-1}\))
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Precipitation

Exposure time (days)

Precipitation (l x m$^{-2}$)
Cotton fibers

Exposure time (days)

Fiber persistence (numbers)
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Wool fibers

Fiber persistence (numbers)

Exposure time (days)
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Polyester fibers

Exposure time (days)

Fiber persistence (numbers)
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Conclusion

Fibers can persist to a high extend on skin and garments which have been exposed to the elements for weeks.

Little rainfall and low wind velocity affect fiber persistence only to a small degree.

High amounts of precipitation result in high fiber losses.

The number of persisting fibers depend on the surface characteristics of the recipient garments.

Our experiments never showed a total loss of fibres.
What does this mean concerning our daily casework?

The probability of finding fibers originating from the offenders clothing on skin and garments of a homicide victim is very high, even when the corpse has been exposed to the elements for weeks.

Furthermore it can be assumed that fibers from the offenders clothing will persist for a longer time on skin and clothing of the victim than fibers from the victim on the offenders clothing, if it has been worn after the crime.
Thank you for your attention!