How effective is Permethrin-treated clothing in preventing tick bites?

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http://danielcameronmd.com/how-effective-is-permethrin-treated-clothing-after-its-been-washed/

Now, a new study by Connally and colleagues examines the effectiveness of treated clothing after it is worn and washed/dried. [2] Does this impact the contact irritancy and toxicity against *Ixodes scapularis* nymphs?

The investigators forced blacklegged ticks to be in contact with Permethrin-treated clothing for 30 to 120 seconds. They then monitored the ticks’ behavior on untreated and treated clothes.

They found the best outcome occurred before Permethrin-treated clothes were washed.

“Pristine Permethrin-treated clothing displayed strong contact irritancy and toxicity toward *I. scapularis* nymphs,” writes Connally.

One hour after the ticks had been in contact with the treated textiles for 30-120 seconds, 0-30% of the ticks (across clothing types and tick sources) exhibited normal movement.

But after 16 days of wear and 16 rounds of machine washing and drying, the concentration of Permethrin dropped by 50 – 90%.

“This loss of Permethrin was associated with reduced contact irritancy and toxicity for ticks after forced contact with worn and washed/dried treated clothing,” writes Connally. And after 1 hour of contact, 31 to 67% of ticks displayed normal movement.

Still, the worn and washed/dried Permethrin-treated clothing showed better protection than untreated garments, for which 90–100% of ticks displayed normal movement.

What about Permethrin-treated socks and shoes?

Treated socks had a “less pronounced impact” on the ticks.

This may be due to the looser weave of the fiber which allows ticks to move across it with less of their body surface coming in contact with the treated textile, the authors speculate. Or the fibers may not retain as much Permethrin as the other textiles.

Treated shoes, which were worn but not washed, remained toxic to the ticks.

The study has important limitations: Ticks may reach their destination in less than 30 seconds, and ticks that climb on skin directly will not be affected.
Lastly, the study did not address the potential risks some parents raise in exposing their child to the insecticide Permethrin.

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References:
