

Research reveals why it's hard to get the smell out of polyester

July 31 2020, by Bev Betkowski



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Why does that favourite shirt, the one you've been wearing around the house since COVID-19 started, still stink, even after regular washing?

Chances are it contains [polyester](#), which means that funky smell isn't going to go away, according to a new University of Alberta study.

Laundering experiments showed that odorants—smelly [compounds](#) like those in sweat—are more attracted to polyester than to other fabrics like cotton, and don't completely wash out.

"We found that polyester isn't easily releasing those sweaty-smelling compounds, and repeated wearing puts more of them into the fibre, so over time there's this buildup of odour," said lead author Mukhtar Abdul-Bari, who conducted the research for his master's degree in [textile](#) and apparel science.

Polyester and cotton knit fabrics were soiled with three odorants and then put through several wash cycles with various detergents; laundering proved more effective at removing the stinky compounds from cotton than from polyester, according to the study, published in the *Textile Research Journal*.

Polyester is a non-polar fibre—meaning it repels water—which is why it dries quickly, but that also means it naturally attracts oil from our skin, which can lead to body odour, Abdul-Bari said.

The good news is, that favourite stinky shirt will probably only get to a certain level of smelliness. Between five and 10 wash cycles, there were no significant differences in the amounts of odorants extracted from the [fabric](#), the study showed.

The research gives more insight into why popular solutions like antimicrobial textiles only partly address the issue of stinky fabrics.

"Most people think that textiles treated with antimicrobials will solve the problem by killing the bacteria, but the bacteria create the odour on our

skin and these compounds are taken in by the clothing fibres, so, it's not just about bacteria anymore," said U of A clothing and textiles scientist Rachel McQueen, who was a co-author of the study.

"It's now about the odorous compounds and the interaction with the fabric."

Not everyone will wind up with permanently smelly polyester clothing, McQueen added.

"It depends on their personal body chemistry. They may never have a problem, but if they have any concerns with body [odour](#), they should choose [cotton](#) to wear."

More information: M Mukhtar Abdul-Bari et al. Retention and release of odorants in cotton and polyester fabrics following multiple soil/wash procedures, *Textile Research Journal* (2020). [DOI: 10.1177/0040517520914411](#)

Provided by University of Alberta

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