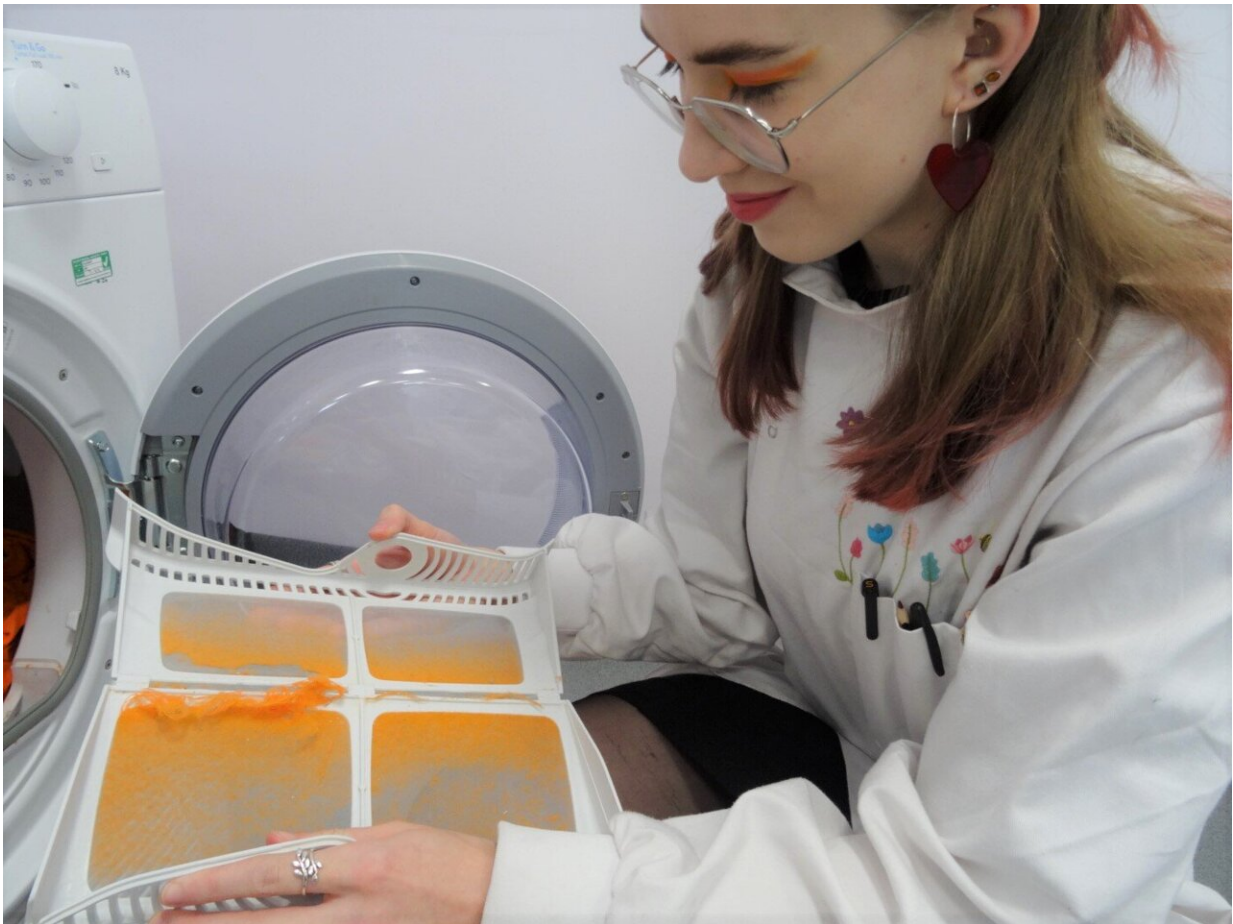


'Sustainable' ventless dryers may contribute to waterborne microfiber pollution

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Examining microfibers collected on the dryer lint filter. Credit: Procter & Gamble, CC-BY 4.0 (<https://creativecommons.org/licenses/by/4.0/>)

Fibers lost during the wear and care of textiles may pose a risk to the environment and human health when released into air and water. A study published in *PLOS ONE* by Neil J. Lant at Procter & Gamble, Newcastle Innovation Center, Newcastle upon Tyne, United Kingdom, and colleagues suggests that while condenser dryers may reduce airborne microfibers compared to vented dryers, they are a significant contributor of waterborne microfiber pollution.

Recent studies have suggested that transitioning from vented tumble dryers to condenser dryers with no exhaust outlet could reduce airborne [microfiber pollution](#). However, their impact on waterborne microfiber pollution is unknown. To evaluate the environmental impact of condenser dryers, researchers tested loads of new, clean garments as well as dirty laundry sourced from volunteers in Newcastle upon Tyne, United Kingdom. They collected and analyzed microfibers from several components of each type of dryer.

The researchers found that both dryer types produced microfiber pollution, including water pollution from rinsing lint traps in the sink. While condenser dryers are ventless and do not exhaust microfibers into the air, the lint filter, condenser, and condensed water are all significant sources of microfiber water pollution.

Future research is needed, however, to replicate the study using a larger sample size, as well as to explore strategies to sequester, dispose of, or eliminate laundry-based microfiber pollution.

According to the authors, "The appliance industry, its trade associations and legislators should recognize that all types of tumble dryer can be significant contributors to the problem of environmental microfiber pollution and begin efforts to mitigate this issue through revised usage instructions and improved appliance design. Current plans to introduce microfiber filtration systems into washing machines are expected to

reduce the environmental impact of that stage in the laundering process, suggesting that reapplication of similar approaches to tumble dryers is a logical next step."

Neil Lant, of Procter & Gamble, adds, "Our recent work in collaboration with Northumbria University has recognized, for the first time, that the most important tumble dryer types used in Europe (condenser and [heat pump](#)) can also be significant contributors to aquatic microfiber pollution, especially if users wash lint filters in a sink. We do over 2 billion dryer loads in the U.K. each year, generating around 2,000 tons of microfiber. We can prevent around 90% of that from causing water pollution by cleaning lint filters into household waste, but to deal with the rest we'll need to redesign the air filtration systems in all types of dryers."

John Dean, of Northumbria University, adds, "By working collaboratively with the Procter & Gamble Newcastle Innovation Center's Dr. Neil Lant, and his colleagues, we have for the first time focused on microfiber release from vented and condenser dryers using real consumer laundry loads. It was found that the vast majority of microfibers released from dryers is collected in the lint filter, thereby preventing release into the environment. You realize that some manufacturers, however, then recommend regular washing of the lint filter under a running tap, which contributes directly to an increase of waterborne microfiber pollution.

"After considering the environmental impact of current domestic household practices, a simple remedy is proffered. Instead of washing the lint filter under the tap after use in the tumble dryer, simply clean the filter either by hand, a light brush, cloth, or [vacuum cleaner](#), and dispose of the collected fibers, as dry waste, in household waste. This simple and effective procedure can reduce microfiber release from tumble dryers and contribute to the protection of the global natural water

environment."

More information: Impact of vented and condenser tumble dryers on waterborne and airborne microfiber pollution, *PLOS ONE* (2023). [DOI: 10.1371/journal.pone.0285548](https://doi.org/10.1371/journal.pone.0285548)

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