PFAS

A short guide to understanding exposure and long-term presence

PhilNutriomics

PFAS are a group of synthetic chemicals
designed to resist water, oil, grease, and heat.

They have been used since the mid-20th century
across many industries and products.

They are not always visible.

But present in the background
of everyday life.

Exposure is rarely a single event.

It happens in small, repeated ways —
through the environments we move through
each day.

What is distinctive
is that they remain over time.

PFAS are often associated
with non-stick cookware
and water-resistant materials.

But their presence extends beyond
what we immediately notice.

They can be encountered in:

– food packaging
– drinking water
– household dust
– clothing and textiles
– some cosmetics
– some dental flosses

This means exposure is not confined
to one place.

It moves with us —
between objects, environments, and routines.

Often quietly,
and without direct awareness.

Exposure happens through everyday contact:

– ingestion (food and water)
– inhalation (air and dust)
– skin contact (materials and surfaces)

The body is not responding to a single moment.

It is continuously sensing, interpreting,
and adapting
to what surrounds it.

With PFAS, this interaction can extend
beyond the moment of contact.

Not always in obvious ways.
But through patterns that persist.

PFAS are highly persistent.

They do not break down easily
in the environment
or in the body.

Over time, repeated contact
can become part of the environment
the body is responding to.

Some PFAS can accumulate
in blood and tissues.

Meaning their presence
can continue
long after exposure has occurred.

This builds on an earlier understanding
of repeated exposure,
while introducing a different dimension —
persistence over time.

Not everyone responds in the same way.

The effect of exposure is shaped by:

– frequency and duration
– life stage (including pregnancy and childhood)
– cumulative exposure from multiple sources
– the body’s capacity to process and respond

Two people may move through similar environments,
yet experience them differently.

PFAS use is shaped not only by individual choices,
but by industrial systems, policy,
and regulation.

Across Europe,
there is growing movement
to restrict entire groups of PFAS chemicals,
including proposals to phase out
non-essential uses.

In the United States,
regulation has historically focused
on individual compounds,
with increasing attention now placed
on drinking water limits.

In the United Kingdom,
approaches continue to evolve,
with growing attention to PFAS sources,
pathways, and exposure reduction.

Understanding continues to develop
as research and policy progress.

While PFAS are widespread,
the pattern of exposure
can be influenced over time.

What shapes this pattern
is the direction of everyday contact.

As this becomes more visible,
the pattern is no longer fixed —
a perspective explored more fully
through the PhiNutriomics approach.

Small shifts, repeated over time,
begin to reshape that pattern.

Where this begins to take form
is in everyday choices and routines.

Food and kitchen

Choosing cookware without non-stick coatings
can reduce one source of exposure.

Being mindful of food packaging,
particularly when heating,
can also be helpful.

Water

Using appropriate filtration
can help reduce exposure.

The type of filtration matters,
as water composition varies by region.

Home environment

Regular dust removal
and ventilation
can reduce accumulation indoors.

Clothing and textiles

Reducing reliance on stain-
and water-resistant treatments
can shift overall exposure.

Personal care

Some products may contain
fluorinated compounds.

Ingredients that include “fluoro”
can indicate their presence,
though labelling is not always clear.

Over time,
these changes can begin to alter
the overall pattern
of exposure.

This guide is part of a wider exploration.

Each builds on the last,
forming a gradual understanding
of the environments we live within.

SOURCES

Regulatory & Public Health Bodies

European Food Safety Authority (EFSA)
European Chemicals Agency (ECHA)
European Commission (including Eurostat)
UK Health Security Agency (UKHSA)
UK Environment Agency
US Environmental Protection Agency (EPA)
Agency for Toxic Substances and Disease Registry (ATSDR)
National Institute of Environmental Health Sciences (NIEHS)
World Health Organization (WHO)

Key Scientific Literature

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Perfluorinated compounds—Exposure assessment for the general population. International Journal of Hygiene and Environmental Health, 212(3), 239–270.

Additional Context

Peer-reviewed research on:

- indoor dust as a reservoir for PFAS
- food packaging migration
- textile and consumer product treatments
- drinking water contamination and filtration approaches