VibrantWellness

PFAS

Key Clinical Messages

What is the PFAS Test?

Vibrant's PFAS chemicals panel is a urine-based test that measures the levels of 21 different PFAS chemicals present in the urine. This test can be ordered as a stand-alone test or as part of the total toxin bundle to determine an individual's exposure to PFAS chemicals.

What are PFAS?

The PFAS term encompasses thousands of per-and polyfluoroalkyl chemicals which are industrially produced for surface tension lowering or "non-stick" properties. PFAS offer water, oil, and stain-repellent capabilities and other friction-reduction benefits. PFAS are broadly used in aviation, automotive, and electronics industries, as well as in consumer goods such as cosmetics, paints, fast food packaging, carpets, floor polishes, herbicides, cookware, outdoor gear, and firefighting agents. Due to widespread applications, humans are often chronically exposed to PFAS daily.

PFAS chemicals have a unique physicochemical structure. All PFAS chemicals contain a chain of carbon atoms chemically bonded to fluorine atoms. The carbon-fluorine bond is one of the strongest chemical bonds known and is difficult to break. As a result of this chemical property, PFAS can remain in the environment, humans, and wildlife for a very long time and therefore have become known as the "forever chemicals." [1] [2]

Why Order the PFAS Test?

PFAS are ubiquitous in the environment and can have significant health impacts on the body. They're found in our environment due to contamination from PFAS manufacturing and from direct exposure to products containing PFAS. The most notorious source of PFAS is non-stick cookware. However, they're also found in many other sources, including anti-stain coatings on furniture, food package linings, seafood and animal products, water-repellant clothing, dental floss, ski waxes, and contaminated water. These are products that many people use often, and exposure can significantly impact an individual's health.

There is increasing evidence that PFAS exposure has the potential to harm multiple systems, including endocrine, neurological, respiratory, immune, urinary, gastrointestinal, reproductive, and cardiovascular systems.1Due to the chemical structure of PFAS, they are considered "forever chemicals," which impacts the body's ability to metabolize or detoxify them and contributes to their adverse physiological effects.

Understanding an individual's PFAS levels is essential to tailoring lifestyle, dietary, supplement, and medication interventions to address any increased risk factors for disease from PFAS exposure.

Which Patients Benefit from This Test?

Conditions and symptoms which may benefit from PFAS testing include:

- ADHD
- Allergies
- Asthma
- Autism spectrum disorder
- Cancer
- Cognitive decline
- Depression
- Diabetes
- Dyslipidemia
- Gastrointestinal dysfunction
- Gestational diabetes
- Hormone imbalances
- Hyperlipidemia
- Hypertension
- Immune dysfunction
- Infertility
- Inflammatory conditions
- Intestinal permeability
- Kidney disease
- Liver disease
- Low infant birth weight
- Memory impairments
- Neurological dysfunction
- Obesity
- Osteoporosis
- Pre-eclampsia
- Thyroid disease
- Ulcerative colitis

Which Tests Pair Well With the PFAS Test?

- **Mycotoxins:** To assess the total body burden for other toxins, including mycotoxins.
- **Heavy Metals:** To assess the total body burden for other toxins, including heavy metals.
- **Environmental toxins:** To assess the total body burden for other toxins, including environmental toxins.
- **Micronutrient or NutriPro:** Provides testing on nutrients with serum and intracellular nutrient levels (Micronutrient test) plus nutrition-related genetic SNPs (NutriPro test), which may be important to assess for nutrients that are important for detoxification, excretion, and antioxidant support.

Test Prep

Collection: One (1) urine specimen tube.

Hydration: Do not drink more than 8 oz. of water 1 hour before each urine collection. Samples may be rejected if the urine is too dilute.

Fasting: Not required.

Diet Restrictions: None

Medication Restrictions: None

Supplement Restrictions: None

Reference Ranges and Interpretation of Results

Reference Ranges

Reference ranges were determined using urine samples from 1000 apparently healthy individuals. The report begins with the summary page, which lists only the PFAS chemicals whose levels are >95th percentile (Red) and 75th- 95th percentile (Yellow) of the reference range, normalized to urine creatinine levels.

The previous value is also indicated for your referral (if available).

Following this section is the complete list of the PFAS chemicals, their absolute levels normalized to creatinine in a quartile format, and the reference ranges. These levels are shown with three shades of color — Green, Yellow, and Red. The result in green corresponds to 0 to 75th percentile, the result in yellow corresponds to 75th to 95th percentile, and the result in red corresponds to greater than 95th percentile of the reference range.

Interpretation of Results

Vibrant offers a clinical guide to assist with interpreting PFAS test results.

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Methodology

ViVibrant is a CLIA-certified lab that utilizes reliable, high-quality methodologies to measure PFAS in the urine.

- PFAS are tested using liquid chromatography with tandem mass spectrometry (LC-MS/MS).
- The analyte results are expressed by normalizing to the quantity of creatinine measured to account for urine dilution variations.

What Markers Are Included on the Vibrant's PFAS test?

Vibrant tests for **21 different PFAS chemicals:**

- GenX/HPFO-DA
- Dodecafluoro-3H-4,8- dioxanoate (NaDONA)
- Perfluoro-1-[1,2,3,4-13C4] octanesulfonic acid
- Perfluoro-n-[1,2-13C2] decanoic acid (MPFDA)
- Perfluorobutanoic acid (PFBA)
- Perfluorododecanoic acid (PFDoA)
- Perfluorohexane Sulfonic Acid (PFHxS)
- Perfluorononanoic acid (PFNA)
- Perfluorooctanoic acid (PFOA)
- Perfluorotetradecanoic acid (PFTeDA)
- Perfluoroundecanoic acid (PFUnA)
- 9-chlorohexadecauoro-3- oxanonane-1-sulfonate
- Perfluoro-[1,2-13C2] octanoic acid (M2PFOA)
- Perfluoro-1-heptane sulfonic acid (PFHpS)
- Perfluoro-n-[1,2-13C2] hexanoic acid
- Perfluorodecanoic acid (PFDeA)
- Perfluoroheptanoic acid (PFHpA)
- Perfluorohexanoic acid (PFHxA)
- Perfluorooctane sulfonic acid (PFOS)
- Perfluoropentanoic acid (PFPeA)
- Perfluorotridecanoic acid (PFTrDA)

References:

1. Mokra K. Endocrine Disruptor Potential of Short- and Long-Chain Perfluoroalkyl Substances (PFASs)—A Synthesis of Current Knowledge with Proposal of Molecular Mechanism. International Journal of Molecular Sciences. 2021; 22(4):2148. https://doi.org/10.3390/ijms22042148
2. Sunderland EM, Hu XC, Dassuncao C, Tokranov AK, Wagner CC, Allen JG. A review of the pathways of human exposure to poly- and perfluoroalkyl substances (PFASs) and present understanding of health effects. J Expo Sci Environ Epidemiol. 2019 Mar;29(2):131-147. doi: 10.1038/s41370-018-0094- 1