

chemicals build up in the human body, and have been shown to cause developmental effects to fetuses and infants, kidney and testicular cancer, liver malfunction, hypothyroidism, high cholesterol, ulcerative colitis, obesity, decreased immune response to vaccines, reduced hormone levels, delayed puberty, and lower birth weight and size.³ Recent literature also suggests PFAS exposure can result in decreased fertility in women.⁴ And because of their impacts on the immune system, PFAS may also exacerbate the effects of Covid-19.⁵

Exposure to other PFAS, such as perfluorobutyric acid (PFBA),⁶ perfluorohexanoic acid (PFHxA),⁷ perfluorononanoic acid (PFNA),⁸ perfluorodecanoic acid (PFDA),⁹

Drinking Water Health Advisory: Perfluorooctane Sulfonic Acid (PFOS) CASRN 1763-23-1 (June 2022), at 3–4, <https://perma.cc/TQM6-57PZ>.

³ U.S. Env’t Prot. Agency, Drinking Water Health Advisories for PFAS: Fact Sheet for Communities at 1–2 (June 2022), available at <https://perma.cc/T7FQ-EKD6>; Agency for Toxic Substances and Disease Registry, Toxicological Profile for Perfluoroalkyls (May 2021); PFAS National Primary Drinking Water Regulation Rulemaking, 88 Fed. Reg. 18,638, 18,642 (Mar. 29, 2023) (discussing developmental effects).

⁴ Nathan J. Cohen, *Exposure to Perfluoroalkyl Substances and Women’s Fertility Outcomes in a Singaporean Population-Based Preconception Cohort*, 873 SCI. TOTAL ENV’T 162267 (May 15, 2023).

⁵ See Philippe Grandjean et al., *Severity of COVID-19 at elevated exposure to perfluorinated alkylates*, 15(12) PLoS ONE 1–2 (Dec. 31, 2020), <https://perma.cc/Z5S3-LFWR>.

⁶ U.S. Env’t Prot. Agency, IRIS Toxicological Review of Perfluorobutanoic Acid (PFBA, CASRN 375-22-4) and Related Salts at xii (Dec. 2022), <https://perma.cc/7N53-6K2M> (explaining that “available evidence indicates that developmental, thyroid, and liver effects in humans are likely caused by PFBA exposure in utero or during adulthood”).

⁷ U.S. Env’t Prot. Agency, IRIS Toxicological Review of Perfluorohexanoic Acid [PFHxA, CASRN 307-24-4] and Related Salts at xiv, 14 (Apr. 2023), <https://perma.cc/6562-8JA5> (concluding exposure to PFHxA “likely causes” liver, fetal development, and immune system complications, as well as decreased red blood cell counts).

⁸ U.S. Env’t Prot. Agency, IRIS Toxicological Review of Perfluorononanoic Acid (PFNA) and Related Salts (Public Comment and External Review Draft) (Mar. 2024), <https://perma.cc/S6KK-EBVV>; Cheryl E. Rockwell et al., *Acute Immunotoxic Effects of Perfluorononanoic Acid (PFNA) in C57BL/6 Mice*, J. OF CLINICAL AND EXPERIMENTAL PHARMACOLOGY S4-002 7 (2013), <https://perma.cc/GH27-BHL9> (concluding that PFNA can disrupt blood cell functions and alter immune system responses); Agency for Toxic Substances and Disease Registry, *Toxicological Profile for Perfluoroalkyls* at 7–21 (May 2021) [hereinafter “ATSDR, Toxicological Profile for PFAS”], <https://perma.cc/L8PY-DYKN> (noting decreased pup survival in rodents as well as developmental delays, decreases in birth weight, decreased sperm motility, and altered immune responses); Francesca Coperchini et al., *Thyroid Disrupting Effects of Old and New Generation PFAS*, FRONTIERS IN ENDOCRINOLOGY (Jan. 2021), <https://perma.cc/VSK9-KBHR>; Natalie M. Crawford et al., *Effects of Perfluorinated Chemicals on Thyroid Function, Markers of Ovarian Reserve, and Natural Fertility*, 69 REPRODUCTIVE TOXICOLOGY 53–59 (2017); Ryan C. Lewis et al., *Serum Biomarkers of Exposure to Perfluoroalkyl Substance in Relation to Serum Testosterone and Measures of Thyroid Function Among Adults and Adolescents from NHANES 2011-2012*, 12 INT’L J. ENV’T RES. PUBLIC HEALTH 6098–6114 (2015).

⁹ U.S. Env’t Prot. Agency, Draft IRIS Toxicological Review of Perfluorodecanoic Acid (PFDA) and Related Salts (Public Comment and External Review Draft) (Apr. 2023), <https://perma.cc/D75M-AWHN>.