

10 papers since 2017 on glyphosate toxicity linked to many diseases and conditions.

Compiled by Stephanie Seneff, Senior Research Scientist, MIT. September 11, 2024

1. Autism, 2020.

[Y Pu et al. Maternal glyphosate exposure causes autism-like behaviors in offspring through increased expression of soluble epoxide hydrolase.](#) Proc. Natl. Acad. Sci. U.S.A. 2020; 117: 11753–11759.

Exposure to glyphosate during pregnancy and lactation in mice induces autism-like behavior in the offspring.

2. Autism, 2024.

[T Hirai et al. Arachidonic acid-derived dihydroxy fatty acids in neonatal cord blood relate symptoms of autism spectrum disorders and social adaptive functioning: Hamamatsu Birth Cohort for Mothers and Children \(HBC Study\).](#) Psychiatry Clin Neurosci. 2024 Sep;78(9):546-557.

Toxic metabolites of arachidonic acid in cord blood linked to autism. Discusses evidence that glyphosate is a cause.

3. Alzheimer's disease, 2022.

[JK Winstone et al. Glyphosate infiltrates the brain and increases pro-inflammatory cytokine TNFα: implications for neurodegenerative disorders.](#) J Neuroinflammation 19, 193 (2022).

Glyphosate reaches the brain and causes cytotoxicity and an increase in amyloid beta production, indicating Alzheimer's risk.

4. Gut Dysbiosis, 2020.

[Q Tang et al. Glyphosate exposure induces inflammatory responses in the small intestine and alters gut microbial composition in rats.](#) Environ Pollut. 2020 Jun;261:114129.

Glyphosate caused overgrowth of pathogenic bacteria in rat gut.

5. Fatty Liver Disease, 2017.

[R. Mesnage et al. Multiomics reveal non-alcoholic fatty liver disease in rats following chronic exposure to an ultra-low dose of Roundup herbicide.](#) Sci Rep 2017; 7:39328.

Chronic ultra-low-dose exposure of rats to glyphosate caused fatty liver disease.

6. Insulin Resistance, 2023.

[S Jayaraman et al. Glyphosate potentiates insulin resistance in skeletal muscle through the modulation of IRS-1/PI3K/Akt mediated mechanisms: An *in vivo* and *in silico* analysis.](#) Int J Biol Macromol. 2023;242(Pt 2):124917.

Glyphosate causes skeletal muscles to become insulin resistant, leading to diabetes.

7. Insulin Resistance, 2022.

[A Barbosa et al. Maternal exposure to glyphosate-based herbicide promotes changes in the muscle structure of C57BL/6 mice offspring.](#) Anat Rec (Hoboken). 2022 Nov;305(11):3307-3316.

Maternal exposure to glyphosate during pregnancy and lactation results in reduced body growth, increased fatty deposits and impaired muscle function in the offspring.

8. Toxicity of Surfactants and Adjuvants, 2019.

[R Mesnage et al. Insight into the confusion over surfactant co-formulants in glyphosate-based T herbicides.](#) Food and Chemical Toxicology 2019; 128: 137–145.

Insufficient studies on toxicity of surfactant additives in glyphosate formulations.

9. Glyphosate & Cancer, 2018.

[MJ Davoren and RH Schiestl. Glyphosate-based herbicides and cancer risk: a post-IARC decision review of potential mechanisms, policy and avenues of research.](#) Carcinogenesis. 2018 Oct 8;39(10):1207-1215.

Glyphosate causes microbiome disruption and endocrine mimicry at very low concentrations. Link to non-Hodgkin's lymphoma.

10. Transgenerational Effects, 2019.

[D Kubsad et al. Assessment of Glyphosate Induced Epigenetic Transgenerational Inheritance of Pathologies and Sperm Epimutations: Generational Toxicology.](#) Sci Rep 2019; 9: 6372.

Low dose exposure of mouse dams to glyphosate during gestation. Pathologies in grandpups and great-grandpups include prostate disease, obesity, kidney disease, ovarian disease, and birth defects.