

Press release

GLOBAL GLYPHOSATE STUDY PILOT PHASE SHOWS REPRODUCTIVE AND DEVELOPMENTAL EFFECTS AT “SAFE” DOSE

A new study (1) has found that exposure to glyphosate-based herbicides (GBHs), including Roundup, caused reproductive and developmental effects in both male and female rats, at a dose level currently considered safe in the U.S. (1.75 mg/kg bw/day).

Exposure to GBHs was associated with androgen-like effects, including a statistically significant increase of anogenital distance (AGD) in males and females, delay of first estrous and increased testosterone in females. AGD, the distance between the anus and the genitals, is a sensitive marker of prenatal endocrine disruption (2) affecting the genital tract development. Exposure to different chemicals including pesticides has been linked previously to altered AGDs and other endocrine effects (3)(4).

This is the fourth in a series of related papers (5) from the pilot phase of the Global Glyphosate Study. The first results of the pilot phase of the study were presented to the European Parliament on May 16th 2018. The previous peer-reviewed publications show that exposure to GBHs leads to other effects, including altering the gut microbiota of rats in early development, particularly before the onset of puberty.

The pilot phase of the Study was performed by the Ramazzini Institute and a network of scientific partners including the University of Bologna, the Genoa Hospital San Martino, the Italian National Institute of Health, the University of Copenhagen, the Federal University of Paraná, the Icahn School of Medicine at Mount Sinai and the George Washington University.

The € 300,000 study was funded by 30,000 members of the public in Italy, who are associates of the Ramazzini Institute cooperative.

A crowd-funding campaign has been launched to help support a long-term comprehensive Global Glyphosate Study, which following these results is now urgently required.

Background

Glyphosate is the most used herbicide in human history. 18.9 Billion pounds (8.6 Billion Kilograms) of glyphosate-based herbicides (GBHs) have been sprayed worldwide since 1974. Glyphosate use has also increased 15-fold since genetically modified crops were introduced in 1996 (6).

In 2015 the International Agency for Research on Cancer (IARC) classified glyphosate as a “probable human carcinogen” (7). The European Food Safety



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Authority (EFSA), following the German Federal Institute for Risk Assessment (BfR) evaluation, has since stated that glyphosate is “unlikely to pose a carcinogenic hazard to humans” (8) and the European Chemicals Agency (ECHA) stated that “the available scientific evidence did not meet the criteria to classify glyphosate as a carcinogen, as a mutagen or as toxic for reproduction” (9). The U.S. Environmental Protection Agency (EPA) still has a new evaluation of glyphosate pending (10).

The scientific uncertainty surrounding glyphosate and GBHs has also led to political uncertainty, with a shortened 5-year re-approval for glyphosate having been granted by European Union Member States in November 2017.

The Ramazzini Institute and their partners have walked into this unclear situation so as to supply valuable and independent data to enable regulators, governments and the general public of every country to answer the question: Are glyphosate and GBHs safe at real-world levels of exposure?

The pilot study, which is vital for the long-term comprehensive study, aimed to obtain general information as to whether GBHs are toxic at various stages of early life (newborn, infancy and adolescence), and to identify early markers of exposure and effect. Glyphosate and one of its formulations (Roundup Bioflow, MON 52276) were both tested in Sprague Dawley rats, starting from prenatal life until 13 weeks after weaning, exposed to a dose of glyphosate in drinking water corresponding to the U.S. Environmental Protection Agency’s acceptable daily dietary exposure (11), referred to in the U.S. as the chronic reference dose (cRfD) – 1.75 mg/kg/day.

Global Glyphosate Study: Crowdfunding

The Ramazzini Institute, with the support of other independent Institutes and Universities in Europe and the United States, has now launched a crowdfunding campaign for the most comprehensive long-term study ever on GBHs. A long-term study is now necessary to extend and confirm the initial evidence that has emerged in the pilot phase of the Study.

The total budget for this study is € 5 Million and it is already receiving support from the public, politicians and NGOs around the world.

The Ramazzini Institute

The Ramazzini Institute, in over 40 years of activity, has studied more than 200 compounds from the general and occupational environment and many of its results have provided a solid scientific base for regulating and limiting the exposure of a number of substances. Examples include: Vinyl Chloride, Benzene, Formaldehyde, Trichloroethylene and Mancozeb.

Quotes from Scientists

Prof. Philip J. Landrigan, Schiller Institute for Integrated Science and Society, Boston College:

“This very important study from the Ramazzini Institute indicates that glyphosate, the world’s most widely used herbicide, has negative effects on reproductive development in mammalian species even at exposure levels that are currently considered safe and legally acceptable. Although these findings are not definitive, they are very worrisome, and need to be followed closely by national and international regulatory agencies”.

Dr. Fiorella Belpoggi, Cesare Maltoni Cancer Research Center, Ramazzini Institute:

“A long-term study on GBHs encompassing intrauterine life through to advanced adulthood is needed to confirm and further explore the initial evidence of endocrine-related effects and developmental alterations emerged in this pilot study”.



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Prof. Jia Chen, Icahn School of Medicine at Mount Sinai in New York City:
“GBHs are of significant public health concern because of their widespread and sharply increased usage and we still do not know enough about their non-cancerous effects, in particular in developing children”.

Dr. Alberto Mantovani, Italian National Institute of Health:

“A relevant feature of the findings for risk assessors are the definitely stronger endocrine-reproductive effects induced by the product GBH compared to an equivalent dose level of the pure substance glyphosate. The suggestion that other components of GBH may significantly enhance glyphosate toxicity definitely deserves further investigation”.

Prof. Melissa J Perry, George Washington University:

“Although glyphosate has been around for decades, its global use has increased rapidly and we know surprisingly little about the human health effects of such widespread use. This study in rats uses doses that compare to what humans are exposed to in their everyday environments including from the food they eat. These most recent findings demonstrate important impacts on hormone production that shouldn't be ignored. The study findings as a whole are providing valuable original information to more clearly assess the health risks to humans”.

Prof. Anderson Joel Martino Andrade, Federal University of Paraná:

“This pilot study shows that the development of the reproductive system seems to be particularly sensitive to glyphosate and that formulated pesticides may have a different profile of toxic effects than isolated active ingredients”.

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