Glyphosate May Increase Risk of Non-Hodgkin Lymphoma by 41%

Glyphosate raises the risk of Non-Hodgkin lymphoma in heavily-exposed individuals by 41 percent, according to a study by former EPA advisors. This is part of a growing body of evidence against Monsanto's Roundup, now owned by Bayer, that may influence the new wave of lawsuits against the company. The study was a meta-analysis published in *Mutation Research* that analyzed the results of six earlier studies on glyphosate.

All authors claim to have no financial conflicts of interest.

Glyphosate is the most widely used broad-spectrum systemic herbicide in the world. Recent evaluations of the carcinogenic potential of glyphosate-based herbicides (GBHs) by various regional, national, and international agencies have engendered controversy. We investigated whether there was an association between high cumulative exposures to GBHs and increased risk of non-Hodgkin lymphoma (NHL) in humans. We conducted a new meta-analysis that included the most recent update of the Agricultural Health Study (AHS) cohort published in 2018 along with five case-control studies. Using the highest exposure groups when available in each study, we report the overall meta-relative risk (meta-RR) of NHL in GBH-exposed individuals was increased by 41% (meta-RR = 1.41, 95% CI, confidence interval: 1.13-1.75). For comparison, we also performed a secondary meta-analysis using high-exposure groups with the earlier AHS (2005), and we determined a meta-RR for NHL of 1.45 (95% CI: 1.11-1.91), which was higher than the meta-RRs reported previously. Multiple sensitivity tests conducted to assess the validity of our findings did not reveal meaningful differences from our primary estimated

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Lianne Sheppard is a former scientific adviser to the EPA on glyphosate. In 2016 an advisory panel was instructed to determine the safety of glyphosate. Sheppard and to more of the study's authors served on that panel. After reviewing multiple studies indicating a high likelihood that the herbicide is carcinogenic, the panel declared glyphosate to be noncarcinogenic. Bayer uses the panel's findings as proof that their product is safe, but Sheppard criticized the EPA for "not following their own rules."

Together, all of the meta-analyses conducted to date, including our own, consistently report the same key finding: exposure to glyphosate-based herbicides are associated with an increased risk of non-Hodgkins lymphoma."

Bayer AG is facing more than 9,000 lawsuits in the US brought by people suffering from cancer. Plaintiffs blame Monsanto's glyphosate-based herbicides for their cancer. Dewayne Johnson was the first plaintiff to go to trial; he won a unanimous jury verdict against Monsanto in August. A judge reduced the verdict, and of course, Monsanto is appealing. The next trial is set for February 25th, and with many more to follow.

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