

# Obesity and Nonalcoholic Fatty Liver Disease: Biochemical, Metabolic, and Clinical Implications

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	Steatosis	Steatohepatitis
<b>BMI &lt; 30</b>	15%	3%
<b>BMI 30-40</b>	65%	20%
<b>BMI &gt;40</b>	85%	40%

Table 1: Body Mass Index (BMI) is strongly correlated with risk of steatosis (fatty liver disease) and steatohepatitis (non-alcoholic steatohepatitis (NASH)), a more severe form of fatty liver disease.

# **“Glyphosate Excretion is Associated With Steatohepatitis and Advanced Liver Fibrosis in Patients With Fatty Liver Disease”\***

- Non-alcoholic fatty liver disease (NAFLD) is the most common chronic liver disease in developed countries, and it can progress to a more severe form, non-alcoholic steatohepatitis (NASH)
- Fatty liver disease increases risk to cirrhosis and liver cancer
- Rats develop fatty liver disease after low-dose exposure to glyphosate  
"We report that glyphosate excretion is significantly higher in patients with NASH compared to patients without NASH. In addition, we also report a significant dose-dependent increase of glyphosate exposure with increase in fibrosis stages."

\*Paul J Mills et al. Clin Gastroenterol Hepatol. 2020 Mar;18(3):741-743.



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Full length article

## Human serum lipidomics analysis revealed glyphosate may lead to lipid metabolism disorders and health risks

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- Acylcarnitine (Acar) is an intermediate in the mitochondrial  $\beta$ -oxidation of fatty acids
- Significant increases were found for the serum levels of ACar in the glyphosate-exposed group compared with controls.
- This suggests that glyphosate disturbs fatty acid metabolism in the mitochondria
- Disorders in serum Acar are associated with NAFLD, and Acar is a potential screening marker for NAFLD

> [J Pediatr](#). 2016 Nov;178:183-187.e1. doi: 10.1016/j.jpeds.2016.07.055. Epub 2016 Aug 31.

# Autism Spectrum Disorders and Metabolic Complications of Obesity

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**Conclusions:** Children with ASD [autism spectrum disorder] have an increased risk of obesity and obesity-related metabolic disorders. They are more likely to be prescribed medications to treat these complications, suggesting they may have more severe disease. There is a significant association between the use of some psychotropic categories and a diagnosis of obesity, suggesting that obesity in children with ASD may be partially iatrogenic.