# Article information:

Toxicological effects of micro/nano-plastics on mouse/rat models: a systematic review and meta-analysis - PMC  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10233117/>

# Article summary:

1. Micro/nano-plastics (MNPs) have multiple toxic effects on mouse/rat models: The article discusses the toxic effects of MNPs on mouse and rat models, which are commonly used in environmental toxicology and medical health research. The study found that MNPs significantly affected 52.78% of the 1,762 biological endpoints examined.

2. Factors influencing the toxic effects of MNPs: The article highlights several factors that can influence the toxic effects of MNPs, including their size, polymer type, concentration, exposure time, and the sex of the mouse/rat models. These factors can affect various physiological categories such as the nervous system, growth, reproduction, digestive tract histopathology, and inflammatory cytokine levels.

3. Negative impacts on blood glucose metabolism, lipid metabolism, and reproductive function: The study found that MNPs negatively affected blood glucose metabolism, lipid metabolism, and reproductive function in mice. It also noted that male mice were more sensitive to the toxic effects of MNPs on reproductive function. These findings provide insights into potential health risks associated with MNP exposure in humans and highlight the need for further research on molecular-level pathological mechanisms and long-term tissue accumulation effects.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

这篇文章是关于微/纳米塑料对小鼠/大鼠模型的毒理效应的系统综述和荟萃分析。文章首先介绍了微/纳米塑料作为一种环境污染物对生物物种产生多种毒性效应的背景，然后通过系统回顾和荟萃分析总结了微/纳米塑料对小鼠/大鼠模型的毒性效应。文章发现，微/纳米塑料对生物学终点有显著影响的比例为52.78%，并且这些影响受到微/纳米塑料的大小、聚合物类型、浓度、暴露时间以及小鼠/大鼠模型的性别等因素的显著影响。文章还将这些生物学终点归类为神经系统、生长、繁殖、消化道组织病理学和炎症因子水平等不同因素，并指出微/纳米塑料对小鼠血糖代谢、脂质代谢和生殖功能产生负面影响，其中雄性小鼠对微/纳米塑料的毒性效应更为敏感。

然而，这篇文章存在一些潜在的偏见和问题。首先，文章没有提及可能存在的研究偏差或方法学限制，这可能会影响到结果的可靠性和推广性。其次，文章没有明确指出微/纳米塑料对人类健康的潜在风险，并且没有探讨长期组织积累的长期效应。此外，文章没有提供足够的证据来支持其所提出的主张，例如微/纳米塑料对血糖代谢、脂质代谢和生殖功能的负面影响。另外，文章没有探讨可能存在的反驳观点或其他解释。

此外，这篇文章还存在一些片面报道和缺失考虑点的问题。例如，文章只关注了小鼠/大鼠模型而忽略了其他动物模型或体外实验。此外，文章没有考虑到不同种类和来源的微/纳米塑料可能具有不同的毒性效应。

总之，这篇文章在介绍微/纳米塑料对小鼠/大鼠模型毒性效应方面提供了一些有用信息，但也存在一些潜在偏见、片面报道和缺失考虑点的问题。进一步研究需要更全面地评估微/纳米塑料的毒性效应，并探讨其对人类健康的潜在风险。

# Topics for further research:

* 微/纳米塑料的研究偏差和方法学限制
* 微/纳米塑料对人类健康的潜在风险
* 微/纳米塑料的长期组织积累效应
* 微/纳米塑料对血糖代谢、脂质代谢和生殖功能的负面影响的证据
* 反驳观点或其他解释
* 其他动物模型或体外实验中的微/纳米塑料毒性效应
* 不同种类和来源的微/纳米塑料的毒性效应差异

# Report location:

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