

Scientists find risk of lead exposure comes from both ends of firearms

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A woman is shooting at a gun range. Credit: ssonline1349 via Pixabay CC0 Public Domain

Risks from firearms actually come from both ends of the barrel, according to an Indiana University-Purdue University Indianapolis study.

Individuals at firing ranges are exposed to very high amounts of lead from shooting firearms, and [exposure](#) is as high at outdoor firing ranges as it is at indoor ranges. These findings are based on a comprehensive literature review led by Gabriel Filippelli, professor of earth sciences in the School of Science at IUPUI, and his team.

"I am particularly concerned about children, who can be exposed by using the firing ranges themselves or through the fine lead-laden dust adhering to clothes and skin that Mom or Dad brings home," Filippelli said. "It is important to have a frank reassessment of the overall protections for individuals who utilize firing ranges, be that for occupational or recreational purposes."

Recreational users of firing ranges typically do not use protection against lead and exhibit dangerously high levels in their blood. Protections employed by law enforcement, the military and others who work at firing ranges are outdated, according to Filippelli.

"The main exposure culprit appears to be the lead used in the primer of bullets," Filippelli said. "The fine dust generated from this primer blows back onto the shooter, where it is inhaled or adheres to clothing and skin. A secondary exposure source is likely the fragmentation of bullets as they leave the end of the barrel."

One of the health impacts of lead exposure is poor judgment and lower impulsivity control, Filippelli said. "These are not desirable characteristics in people whose job it is to 'serve and protect,' and therefore we should be doing a better job of protecting the health of our [law enforcement](#) and military than current occupational guidelines provide."

The authors provided safety recommendations including conducting a careful reexamination of the allowable lead levels in individuals who frequent firing ranges for occupational reasons, developing better education around [lead-exposure](#) risks for recreational users, and continuing the push to find lead-free substitutes for bullets and primer.

"Lead Exposure at Firing Ranges—A Review" was published online April 4 in the peer-reviewed, open access journal *Environmental Health*.

More information: Mark A. S. Laidlaw et al. Lead exposure at firing ranges—a review, *Environmental Health* (2017). [DOI: 10.1186/s12940-017-0246-0](#)

Provided by Indiana University-Purdue University Indianapolis School of Science

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