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Lead Hazards At Indoor Firing Ranges

There are approximately 70 commercial indoor firing ranges in California. The majority are small operations, often family-run, that offer instruction and target practice to competitive and recreational shooters. Many cities also run firing ranges for law enforcement officers. Cal/OSHA requires range owners to have an active lead safety program to prevent employees from becoming lead poisoned.

Exposure to airborne and settled lead dust at the firing range puts employees, instructors and customers at risk of lead poisoning. In one case, an employee at a range in Northern California was found to have severe lead poisoning with a blood lead level of 76 µg/dl. Over an 18 month period, the Occupational Lead Poisoning Prevention Program of the California Department of Health Services worked intensively with 7 indoor firing ranges that had serious lead poisoning problems.

LEAD HAZARDS AT THE RANGE

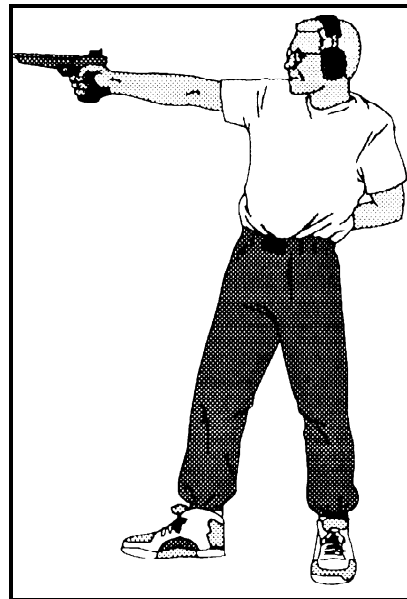
Shooters using ammunition with lead primers or lead bullets (and anyone spending time at the firing line) are exposed to lead fumes in the "gun smoke" that is released into the air when the gun is fired.

Workers are exposed to lead when they clean the range, clean guns, or empty the bullet trap. Dry sweeping of the range causes settled lead dust to become airborne. Workers who clean bullet traps by pouring or shoveling bullet debris into waste buckets are also exposed to very high levels of airborne lead dust.

Workers who eat, drink or smoke without washing up before meals and breaks can swallow lead dust that has settled on their hands, lunchroom surfaces, or food and drink.

THE HEALTH EFFECTS OF LEAD EXPOSURE

Lead harms the brain, nerves, red blood cells,



kidneys and reproductive systems of both men and women. Adults who are lead poisoned may feel tired, irritable or get aches and pains. They can also develop serious health problems without knowing it. Lead can build up in the body and stay there for years.

STRATEGIES FOR PREVENTING LEAD POISONING ON THE JOB

The following are the basic elements of a lead safety program for indoor firing ranges.

- ◆ **Reduce the use of lead-containing ammunition.**
Require the use of jacketed or dipped ammunition, with non-lead primers, to reduce airborne lead in the range. Some ranges require in-house use of such ammunition and sell it at the retail counter.

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STRATEGIES FOR PREVENTING LEAD POISONING ON THE JOB

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- ◆ **Control exposure through ventilation.**
Good ventilation can significantly reduce airborne lead levels at the firing line. Supplied air should move steadily across all shooting booths, carrying the gunsmoke away from the shooter's face and directly down the range where it is exhausted, filtered, and discharged. General building ventilation is not adequate. Contract with a ventilation consultant who has a proven track record of designing effective firing range ventilation systems. Perform regular maintenance to keep the system running well.
- ◆ **Use good housekeeping practices.**
Keep all work areas free from lead by regular cleaning. Cleaning should be done using either a special toxic dust vacuum ("HEPA" vacuum) or by wet mopping. **Never dry sweep the range.** This increases exposure and spreads contamination by kicking up lead dust.



- ◆ **Minimize airborne lead dust while cleaning the bullet trap.**
Where possible, debris trays should be emptied *inside* closed plastic bags. Debris should be repeatedly misted with water during all shoveling operations. New bullet trap designs which do not require cleaning are best and also save time.

- ◆ **Train employees about lead safety.**
All employees should receive training on how to work safely in lead exposure areas. Training increases employee awareness of health and safety conditions and provides them with information and skills to protect themselves on the job.
- ◆ **Provide employees with respirators.**
Fit-tested respirators should be worn during all cleaning operations. Employees should use at least a half-mask respirator with P-100 (HEPA) filters while cleaning the range. At least a full-face respirator with P-100 (HEPA) filters should be worn while cleaning the bullet trap.
- ◆ **Provide employees with protective clothing.**
Employees should wear disposable coveralls, head covering, and shoe coverings when cleaning the range and the bullet trap. **Employees should not wear work clothing or shoes home.** Lead dust is carried on work clothes and shoes from the range to employees' homes and vehicles, putting their children and other household members at risk of lead poisoning.
- ◆ **Prohibit eating, drinking and smoking in the work areas.**
Require employees to wash their hands, forearms, and face before breaks, lunch, and at the end of their work shift.
- ◆ **Establish an on-going lead medical program.**
Find a licensed physician to supervise a lead medical program. The program should include lead-specific medical exams, periodic blood lead level and zinc protoporphyrin testing, and an exam of medical fitness for respirator use. The physician should be familiar with the medical surveillance requirements of the Cal/OSHA General Industry Lead Standard.

For more information on how to prevent lead poisoning at indoor firing ranges, contact the Occupational Lead Poisoning Prevention Program at (1-866-627-1587).