

CMP FACT SHEET

Health and Environment Information Regarding Shooting Lead Pellets on Indoor Air Gun Ranges

This fact sheet was prepared by Gary Anderson, Director of Civilian Marksmanship. Additional information, comments or questions on this topic are invited and should be addressed to DCM@odcmp.com.

This CMP fact sheet was prepared for use in responding to queries regarding possible health issues that might result from handling lead pellets during air rifle firing or from being present on air rifle ranges where lead pellets are fired.

The use of lead as the basic material for the manufacture of air gun pellets is based both on tradition and the fact that lead's combination of density and hardness makes it the only material that is economically feasible to use in producing competition-quality projectiles with suitable accuracy for air rifle competitions.

There have been several medical evaluations during the last 20 years to determine whether individuals who practice regular air rifle or air pistol target shooting are exposed to any real health hazards as a result of their handling lead pellets or being present on ranges during the firing of air rifles or pistols. The shooters who are in the resident athlete program at the U. S. Olympic Training Center in Colorado Springs train on a daily basis with air rifles and air pistols. USOC-monitored blood lead-level testing is routinely required and conducted. This extensive testing has never detected a single case of elevated lead levels among any athletes in this program, even though they regularly complete several hours of range training every day, five or six days per week throughout the entire year. In fact, most of the athletes tested had consistent lead levels that were below the lead levels found in the general population.

This testing by the U. S. Olympic Committee demonstrated that even individuals who are engaged in air rifle and pistol firing on a daily basis for several hours each day are not exposed to lead that in any way endangers or even affects their health. Participants in youth marksmanship programs typically have exposures that are much less than these athletes have.

A few colleges, whose NCAA rifle team members also carry out extensive daily training with air rifles and smallbore rifles, have completed lead testing of their rifle team members. These tests have all produced results similar to the USOC tests. Several national shooting federations in other countries, including Germany, Sweden, Finland and Norway, report similar tests with results that also confirm target shooting with air rifles and smallbore rifles does not create any health hazards for participants in those sports events.

In 1988, William L. Marcus, PhD., a researcher at the National Institute of Health, completed work on the question of lead exposure for shooters. He concluded that with a few simple precautions, the use of lead pellets by young target shooters did not constitute

a health hazard for them. Dr. Marcus worked with shooting sports leaders to develop two simple rules that are still the basis for health guidelines that are taught to shooting coaches, youth shooting sports leaders and youth shooting sports participants. Those rules are:

- 1) Anyone who handles air gun pellets during shooting must wash hands their hands after they finish shooting.
- 2) No foodstuffs or open beverage containers may be taken into the range and no food may be consumed on air gun ranges.

Dr. Heinz Lösel, a distinguished German physician who is the Chairman of the International Shooting Sport Federation's Medical Committee (*The ISSF is the international governing body for Olympic shooting. Dr. Lösel was the personal physician of German Chancellor Helmut Kohl*), directed extensive research on issues dealing with lead exposure for shooters during air gun firing. Dr. Lösel supervised a series of tests measuring airborne lead on ranges in Germany where air rifles and pistols were fired. In his report on these tests he wrote:

Contrary to the situation where smallbore and center-fire ammunition is fired, no propelling charge is necessary for air guns to fire. The abrasion of lead pellets in the barrel, when overcoming mechanical resistance, is of no consequence due to the low barrel velocity of air gun pellets, so lead is not released until a pellet bursts against the pellet trap. Consequently, there is no danger of pollution on air gun ranges.

In fact, the only physiological concern Dr. Lösel had was not with any lead exposure that shooters on the firing line might have, but with the possible depletion of oxygen in the range environment caused by the release of CO₂ gas from air pistols that used CO₂ as a propellant. He concluded that individuals who fire air guns face no health hazards from airborne lead.

Dr. Lösel recommended that pellet traps designed to effectively contain the pellets and pellet fragments be used. Standard pellet traps in use for three-position air rifle shooting are capable of doing that. Dr. Lösel advised that special precautions be taken when handling the lead residue that collects in pellet traps. His concern over the disposal of lead residue in pellet traps is consistent with our advice that this must be done by adult leaders who take proper precautions in handling this material and not by youth who participate in these programs.

Conclusions:

- ⊙ Lead exposure for air rifle and air pistol shooters is effectively minimized or eliminated by taking simple precautions that include routinely washing hands after handling pellets and by keeping all food materials away from air gun ranges.
- ⊙ There is no medical evidence that shooters who handle lead pellets in accordance with established hygiene procedures, even in high performance sports training

programs like those sponsored by the USOC, have ever developed any elevated lead levels that call for medical intervention.

© Pellet traps that capture and hold the spent pellets and pellet fragments must be used. Only adult supervisors who take proper precautions should handle lead pellet residue that is collected in pellet traps after firing.