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Lead contamination of chicken eggs and tissues from a small farm flock.

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Trampel DW, Imerman PM, Carson TL, Kinker JA, Ensley SM



Twenty mixed-breed adult laying hens from a small farm flock in Iowa were clinically normal but had been exposed to chips of lead-based paint in their environment. These chickens were brought to the Iowa State University Veterinary Diagnostic Laboratory, Ames, Iowa, where the concentration of lead in blood, eggs (yolk, albumen, and shell), and tissues (liver, kidney, muscle, and ovary) from 5 selected chickens was determined over a period of 9 days. Blood lead levels ranged from less than 50 to 760 ppb. Lead contamination of the yolks varied from less than 20 to 400 ppb, and shells were found to contain up to 450 ppb lead. Albumen contained no detectable amount. Lead content of the egg yolks strongly correlated with blood lead levels. Deposition of lead in the shells did not correlate well with blood lead levels. Mean tissue lead accumulation was highest in kidneys (1,360 ppb), with livers ranking second (500 ppb) and ovarian tissue third (320 ppb). Muscle contained the lowest level of lead (280 ppb). Lead contamination of egg yolks and edible chicken tissues represents a potential public health hazard, especially to children repeatedly consuming eggs from contaminated family-owned flocks.

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