

Lead Sinkers in the Shower: Effects on water lead and human exposure

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Question 1: Would 1 lead sinker placed in a faucet increase water lead?

WARNING
This product contains lead, a chemical known to the State of California to cause cancer and birth defects and other reproductive harm.



Answer: For 1 Brand New Lead Sinker placed in Detroit Water with 6 hour stagnation

First Draw Lead = 91,500 ppb

Answer: For 1 “aged”* lead sinker with passive phosphate layer, in Detroit Water with 6 hour stagnation

Lead = 2 ppb

*lead sinker exposed to Detroit water with extra 400 mg/L P, to accelerate phosphate scale formation and simulate a year of passivation based on “CT” concept

Question 2: Would lead sinkers packed into a shower increase water lead?



Answer: First flush shower water no stagnation

First Draw Lead = 5,800 ppb

Question 3: Would taking a shower/bath in leaded water cause significant human lead exposure of health concern (without drinking the water)?

Approach: Dr. Edwards took a 20 minute hot shower in the leaded water using an “ultra low flow” 0.5 gallon per minute showerhead that maximizes aerosols, then took a 20 minute bath in the leaded water to maximize possible skin absorption.*

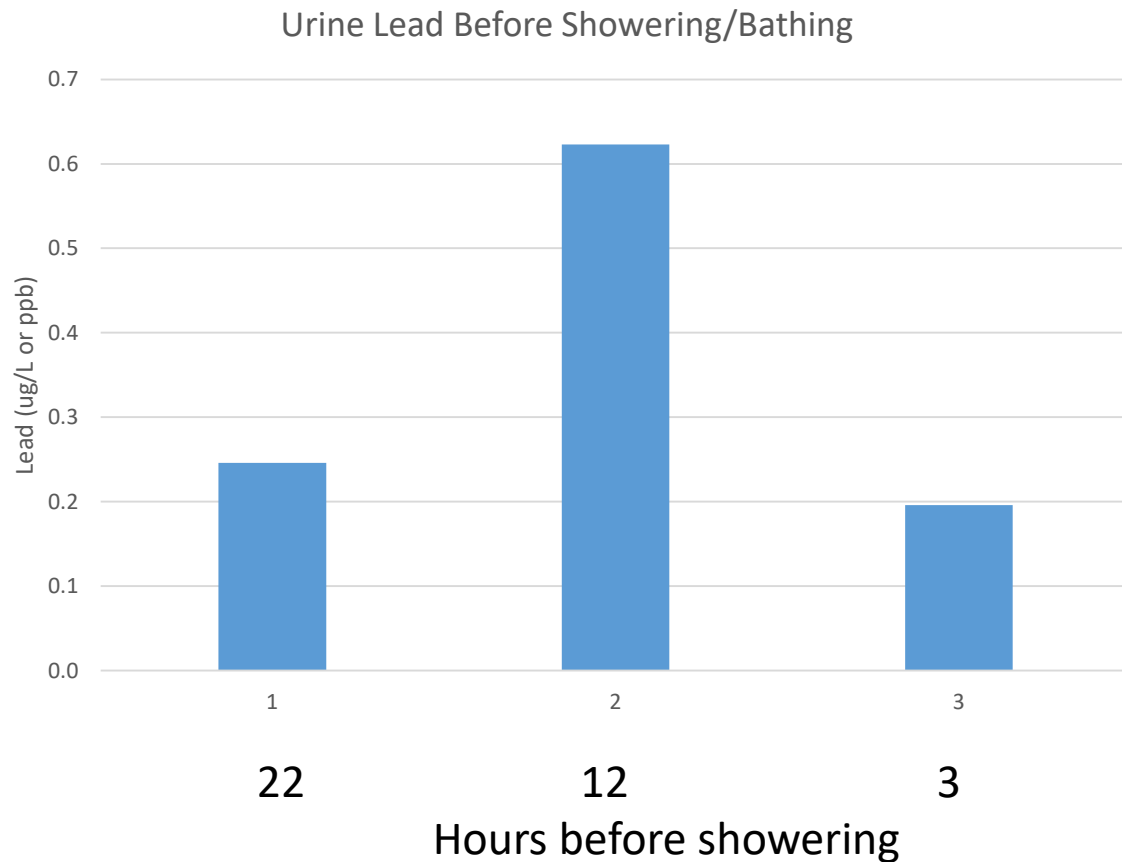
Subject was careful to not drink the water. Human exposure and lead uptake was assessed with 3 sequential urine samples immediately before and after showering.



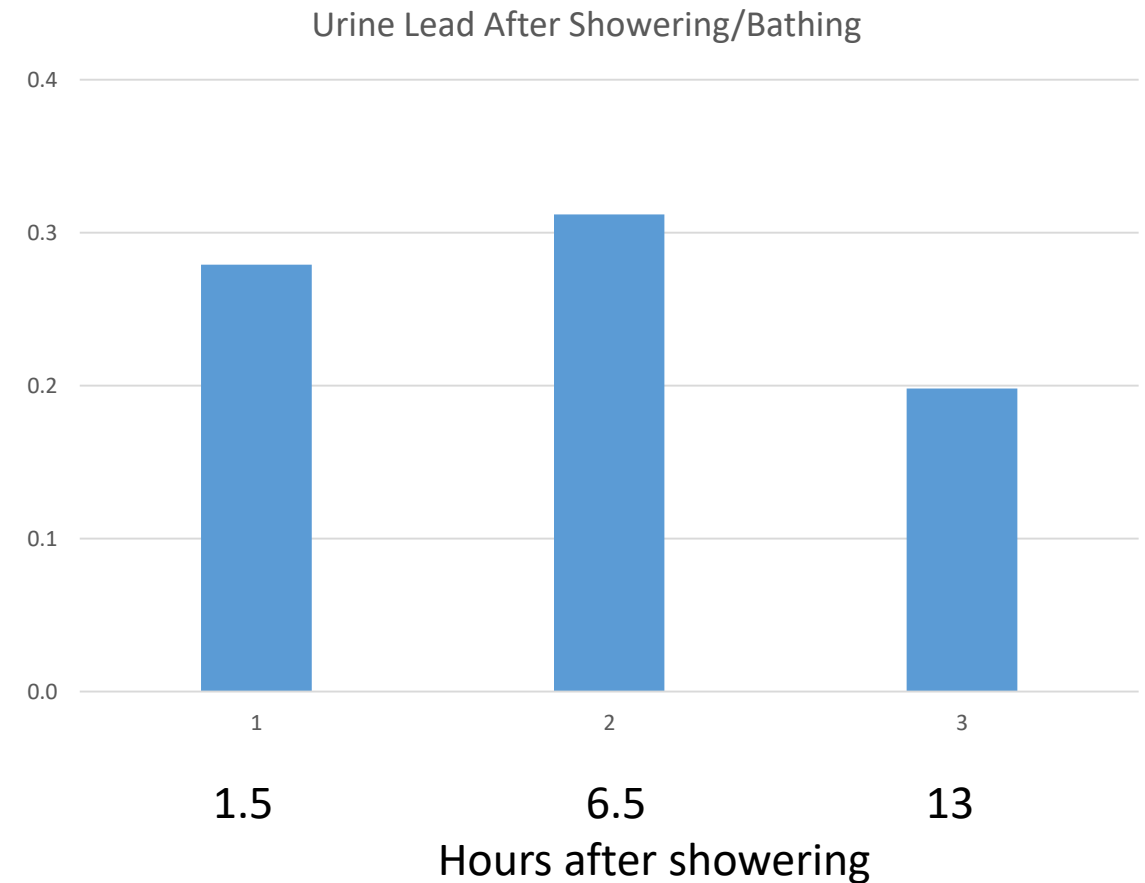
*Dr. Edwards has worked on lead in water issues for 30 years– we do not recommend that anyone try this at home.

No significant increase/change in urine lead after showering

Average Urine Lead Before = 0.36 ppb



Average Urine Lead After = 0.26 ppb



Question 4: How much lead was in the “steam” of a leaded shower?

Approach: Collect steam water samples condensed on mirror.

Answer: 0.0 ppb Pb

This is expected because “steam” is distilled water.



Conclusions

- A single new lead sinker placed in a faucet with Detroit water, can cause water lead to spike to 96,000 ppb
- A single lead sinker passivated with phosphate, then placed in a faucet with Detroit water, can increase water lead as little as 2 ppb
- Placing a lead sinker into a faucet can therefore increase water lead from at least 2 to 96,000 ppb, dependent on circumstance
- “Steam” has undetectable lead, because it is distilled water.
- Taking a shower or bath in leaded water, is not a significant source of human exposure, consistent with long-standing expectations based on medical advice and scientific literature