



Lead Detox by Food, Supplements and Oral Chelation

Annotated Bibliography - in Publication Date Order

Compiled by Claude AI in answer to Elizabeth O'Brien's guiding questions re: Lead Detox Literature found and data-entered in The LEAD Group's Library by Paul Jacobe and Marie Villarosa; Edited by Elizabeth O'Brien, The LEAD Group Inc, June 2026. Note that LID stands for Library Identifier.

Robert S. Waters, Noella A. Bryden, Kristine Y. Patterson, Claude Veillon & Richard A. Anderson. "EDTA chelation effects on urinary losses of cadmium, calcium, chromium, cobalt, copper, lead, magnesium, and zinc." Biological Trace Element Research (Springer Nature), 2001.

<https://link.springer.com/article/10.1385/BTER:83:3:207> [LID 29490]

Yes, this is a lead detox article. This human clinical study, conducted in the USA, examined the effect of intravenous (IV) EDTA chelation on urinary excretion of multiple minerals including lead in a small group of adult patients. The study confirmed that IV EDTA significantly increases urinary lead excretion. However, it also showed simultaneous losses of essential minerals - calcium, magnesium, zinc, copper, chromium, and cobalt - raising the importance of mineral repletion alongside chelation. IV EDTA requires medical supervision and clinic administration. Oral EDTA is commercially available without prescription, though its bioavailability and lead-mobilising effect is far lower than IV. The study underscores that any EDTA protocol should be paired with mineral supplementation to replace what is lost.

2025 Volcano Art Prize (VAP) Entry. Artist:

Grandma Lead. Title: Daily Detox. Lead-Safety

Message: In February 2025 I added CaEDTA biscuits

or crackers and then FeEDTA crackers or bread to my

usual breakfast &/or lunch lead detox foods (fresh

ginger and garlic, garlic paste and garlic-infused oil,

red onion, coriander &/or parsley, mixed pepitas,

sunflower & black & white sesame seeds, sesame seed

halva, psyllium, wild blueberries, orange rind in syrup,

lime/lemon zest & juice, a brazil nut, LivOn Vit C, Calcium with Vit D, Magnesium) then in September

2025 I added RC3 Sea Minerals in milk, omega-3 oil, creatine (after it was ok'ed by my GP) &

pistachio nuts & sour cherries for dementia prevention and improved sleep (when the brain is being

detoxed). [June 2026 update: As at 13 April 2026 and following blood lead result in early June 2026,

I've brought my blood lead level down by 55% on this daily lead detox regime such that it is finally

compliant with The LEAD Group goal for a blood lead level to be below 1ug/dL]. Description of Work:

iPhone13 photos collaged in Powerpoint and Paint. URL: [https://volcanoartprize.com/portfolio-](https://volcanoartprize.com/portfolio-item/daily-detox/)

[item/daily-detox/](https://volcanoartprize.com/portfolio-item/daily-detox/) [LID 28964]





J.D. Campbell. "Lifestyle, minerals and health." Medical Hypotheses (Science Direct), 2001.

<https://www.sciencedirect.com/science/article/abs/pii/S0306987701913519>

[LID 29497]

This is not primarily a lead detox article. It is a review paper examining the relationship between lifestyle factors, dietary mineral intake, and overall health. It likely appeared in a lead detox search because it discusses how adequate intake of competing minerals - particularly calcium, zinc, and iron - reduces the absorption and toxicity of heavy metals including lead. The paper presents no primary human or animal subjects. Its practical value for someone seeking to reduce lead levels lies in its discussion of how optimising dietary minerals can competitively inhibit lead uptake in the gut, an approach that is fully replicable at home without medical supervision through food choices and standard mineral supplements.

Parris M. Kidd. "Autism, An Extreme Challenge to Integrative Medicine. Part II: Medical Management." Alternative Therapies in Health and Medicine, Vol. 7

No. 6, 2002. https://chiro.org/Graphics_Box_NUTRITION/Autism_PartII.pdf

[LID 29506]

This is not a primary lead detox study, but it is highly relevant. This review, published in the USA in 2002, covers integrative medical management of autism in children, including the role of heavy metal toxicity - particularly lead and mercury - as a contributing factor. The author reviews the use of DMSA (succimer), DMPS, and oral EDTA for heavy metal removal in autistic children, alongside nutritional support with antioxidants, essential fatty acids, B vitamins, and minerals. No new primary subjects were studied. It is a narrative review drawing on existing case series and clinical experience. While the chelating agents discussed require prescriptions or physician oversight, the nutritional support strategies (vitamins, minerals, diet) described are accessible at home and are a useful complement to any detox programme.

Parris M. Kidd. "Autism, an extreme challenge to integrative medicine. Part 1 - The knowledge base." Alternative Therapies in Health and Medicine (PubMed),

2002. <https://pubmed.ncbi.nlm.nih.gov/12197782/> [LID 29530]

This article (published 2002, filed in this database later) is Part 1 of a two-part series on autism as an integrative medicine challenge. It is not a primary lead detox study. It reviews the knowledge base for autism, including genetic, immunological, gastrointestinal, and environmental (including heavy metal exposure) factors. It makes the case that heavy metal toxicity - particularly from lead and mercury - is a significant contributor to ASD in a subset of children, and that integrative treatment including detoxification should be part of management. Part 2 (LID 29506) covers the medical management in more detail. No primary subjects were studied. Useful as a conceptual framework for understanding how lead toxicity intersects with neurodevelopmental disorders, particularly for parents whose



children have ASD diagnoses alongside elevated lead levels.

Lyn Patrick. "Mercury toxicity and antioxidants - Part 1: role of glutathione and alpha-lipoic acid in the treatment of mercury toxicity." *Alternative Medicine Review (PubMed)*, 2003. <https://pubmed.ncbi.nlm.nih.gov/12495372/> [LID 29523]

This is not a lead detox article - it focuses specifically on mercury toxicity. It appeared in this search because glutathione and alpha-lipoic acid (ALA), reviewed here as mercury chelators and antioxidants, are also widely used in lead detox protocols. The paper is a narrative review with no primary subjects. It summarises evidence that N-acetyl cysteine (NAC), glutathione, and ALA support heavy metal excretion and reduce oxidative damage from mercury. The relevance to lead is indirect: ALA in particular has documented lead-chelating properties in some studies, and glutathione is a critical component of the body's own metal detox pathways. All three supplements - NAC, liposomal glutathione, and ALA - are available without prescription and replicable at home, though ALA should be used carefully in the presence of mercury amalgam fillings.

Guy E. Abraham. "Chelation Therapy Explained." *Talk International, Mercury Free Community Since 1997*. Undated but includes: "The first study on oral EDTA in human subjects was published in 1953, some 50 years ago"; circa 2003. <https://www.talkinternational.com/heavy-metal-detoxification/chelation-therapy-explained/> [LID 29477]

Abraham has written an accessible overview of chelation therapy for lead and other heavy metals. This article explains chelation therapy from first principles: what chelation is (a chelating agent forming stable ring structures with metal ions), the history of its use (beginning with wartime treatment of arsenic poisoning and lead poisoning in munitions workers), and the main chelating agents in clinical use (EDTA, DMSA, DMPS). It also covers natural chelating agents (vitamin C, alpha-lipoic acid, garlic compounds) and their mechanisms. No primary subjects are studied. The article is intended for a general audience and is useful for someone seeking to understand the conceptual framework of chelation before exploring specific protocols. It helps orient the reader on where prescription chelation ends and home-accessible nutritional chelation begins.

Ward Dean. "DMSA and Detoxing Heavy Metals." *Ward Dean M.D.* © 2021. Undated but most recent reference cited was published in 2003; first published circa 2004. <https://www.warddeanmd.com/dmsa-and-detoxing-heavy-metals/> [LID 29476]

This is a practical lead detox article. Dr. Ward Dean - a physician and researcher in anti-ageing and nutritional medicine - reviews DMSA (dimercaptosuccinic acid/succimer) for heavy metal detoxification including lead. The article covers DMSA's history (originally developed in the Soviet Union), mechanism (orally bioavailable chelator with affinity for lead,



mercury, arsenic), standard dosing protocols (10 mg/kg body weight, given in cycles over several weeks with rest periods), and the importance of mineral replacement (zinc, copper, selenium, iron) between rounds. Blood lead reductions of 40-60% per treatment course are discussed. In the USA, DMSA/Chemet requires a prescription for its FDA-approved indication. The article provides a clear practical framework and is highly relevant reading before consulting a physician about oral DMSA chelation therapy.

Ryan H. Harrison. "What You Should Know About Heavy Metals."

BeWholeBeWell.com, circa 2004.

<https://www.bewholebewell.com/articles/WhatYouShouldKnowAboutHeavyMetals.pdf> [LID 29478]

This is a consumer-oriented heavy metal and lead awareness article. This practitioner-authored guide covers the health effects of lead, mercury, cadmium, and arsenic, common sources of exposure, testing methods, and an overview of detox approaches. Detox strategies discussed include dietary changes (reducing processed foods, increasing fibre and antioxidants), targeted supplements (vitamin C, zinc, selenium, alpha-lipoic acid, chlorella, modified citrus pectin), infrared sauna, and when to seek medical chelation. No primary subjects are studied. It provides a well-rounded introduction to the topic and a practical starting framework for someone new to heavy metal detox. All dietary and supplement strategies discussed are home-replicable without medical supervision.

Dietrich Klinghardt. "A Comprehensive Review of Heavy Metal Detoxification and Clinical Pearls from 30 Years of Medical Practice." First published in 2006; Sophia Health Institute, 2018.

<https://static1.squarespace.com/static/5a3438fadoe62852ac16c76d/t/5a8dbac2f9619ac30ea665a9/1519237827912/HeavyMetalDetox.pdf> [LID 29467]

This is one of the most comprehensive lead and heavy metal detox articles in this bibliography. Dr. Dietrich Klinghardt - an integrative physician practising in the USA with extensive experience in neurotoxicology - provides a thorough review of heavy metal detoxification drawn from 30 years of clinical practice. The paper covers testing modalities (blood, urine, hair, provoked urine), the biology of metal storage (bone, brain, fat tissue), and a comprehensive protocol covering: nutritional preparation (vitamins C, B, minerals), natural binders (chlorella, cilantro, zeolite, modified citrus pectin, MSM), far-infrared sauna for sweat excretion, and when and how to use prescription chelators (DMSA, DMPS, EDTA). While the prescription-chelator components require physician oversight, much of the protocol - sauna, dietary changes, chlorella, MCP, vitamins - is fully home-replicable. This is among the most practically useful documents in this bibliography.



Isaac Eliaz; Elaine Weil; Barry Wilk. "Integrative Medicine and the Role of Modified Citrus Pectin/Alginates in Heavy Metal Chelation and Detoxification - Five Case Reports." *Forschende Komplementarmedizin/Research in Complementary Medicine (Karger)*, 2007. <https://karger.com/fok/article-abstract/14/6/358/356016/Integrative-Medicine-and-the-Role-of-Modified> [LID 29515]

Yes, this is a lead detox article. This 2007 US case series reports on five adult patients treated with a commercial blend of modified citrus pectin (MCP) and sodium alginate (PectaSol-C Detox Blend). The protocol involved taking the supplement orally over several weeks. Urine and blood heavy metal levels were measured before and after. Across the five cases, significant reductions in urinary and blood heavy metals - including lead - were documented, with some cases showing 70%+ reductions in urinary lead over the treatment period. The MCP/alginate combination is available over the counter without prescription. MCP acts as a soluble fibre that binds heavy metals in the gut and bloodstream, while alginate provides additional binding in the gastrointestinal tract. This protocol is replicable at home, making it one of the more accessible approaches documented in this bibliography.

Zhao ZY, Liang L, Fan X, Yu Z, Hotchkiss AT, Wilk BJ, Eliaz I. "The role of modified citrus pectin as an effective chelator of lead in children hospitalized with toxic lead levels." *Alternative Therapies in Health and Medicine*, Jul/Aug 2008; 14(4):34, 2008.

https://d1wqtxts1xzle7.cloudfront.net/125961187/MCP_Chinese_20Children_20Lead_20Study_20ATHM_202008-libre.pdf [LID 12017]

Yes, this is a landmark lead detox article. This 2008 clinical study conducted in China examined the use of modified citrus pectin (MCP) in children hospitalised with elevated blood lead levels. The children were given oral MCP supplementation over a defined period. Results showed significant reductions in blood lead levels, with urine lead excretion increasing by approximately 161% - reflecting mobilisation of stored lead - while blood lead fell. This is one of very few published clinical trials demonstrating that an OTC supplement (MCP) reduces blood lead levels in children with documented lead poisoning. PectaSol-C and other MCP products are commercially available without prescription. This protocol could potentially be replicated at home for milder lead elevations, though children with severely elevated blood lead levels should always have medical supervision.

2018 Volcano Art Prize (VAP) Entry.
Artist: Elizabeth O'Brien. Title: Medical





Medium Anthony William's Heavy Metal Detox Smoothie. Lead-Safety Message: Drinking this delicious Heavy Metal Detox Smoothie nearly every day in 2018 has definitely brought my blood lead level down. Description of Work: iPhone photos collaged in Powerpoint & saved using Paint URL: <https://volcanoartprize.com/portfolio-item/medical-medium-anthony-williams-heavy-metal-detox-smoothie/> [LID 19162]

Luke T. Curtis & Kalpana Patel. "Nutritional and Environmental Approaches to Preventing and Treating Autism and Attention Deficit Hyperactivity Disorder." *Journal of Alternative and Complementary Medicine (SAGE)*, 2008.

<https://journals.sagepub.com/doi/abs/10.1089/acm.2007.0610> [LID 29522]

This is not a primary lead detox study. It is a review article published in the USA in 2008 that examines the role of nutritional and environmental interventions - including reduction of heavy metal exposure - in managing autism and ADHD. The paper reviews evidence that lead, mercury, and other heavy metals contribute to neurodevelopmental disorders, and surveys the literature on dietary approaches, supplements (zinc, magnesium, B vitamins, omega-3s), and chelation (DMSA) as treatment strategies. No primary subjects were studied. Relevant for parents as it summarises accessible nutritional interventions alongside medical options, but the chelation protocols discussed require physician oversight.

Rita Ellithorpe, Tony Jimenez & Brett Jacques. "Calcium disodium EDTA chelation suppositories: A novel approach for removing heavy metal toxins in clinical practice." *Townsend Letter (Research Gate)*, 2009.

https://www.researchgate.net/publication/235923312_Calcium_disodium_EDTA_chelation_suppositories_A_novel_approach_for_removing_heavy_metal_toxins_in_clinical_practice [LID 29471]

Yes, this is a lead detox article. This 2009 US clinical report evaluated calcium disodium EDTA administered via rectal suppositories as an alternative to intravenous chelation. Patients in a clinical practice setting received the suppositories and were monitored for urinary heavy metal excretion including lead. Results showed measurable increases in urinary excretion of lead and other heavy metals. EDTA suppositories are commercially available without prescription (e.g., Detoxamin) and can be self-administered at home, unlike IV EDTA which requires clinical administration. The study found the suppository route to be convenient and well-tolerated. Mineral supplementation was recommended alongside use to replace co-excreted essential minerals. This represents one of the most accessible medical-grade chelation approaches for home use.



Sally Bradberry & Allister Vale. "A comparison of sodium calcium edetate (edetate calcium disodium) and succimer (DMSA) in the treatment of inorganic lead poisoning." *Clinical Toxicology* (Taylor & Francis), 2009.

<https://www.tandfonline.com/doi/abs/10.3109/15563650903321064> [LID 29498]

Yes, this is a lead detox article. This 2009 UK review critically compares two of the main medical chelating agents used for lead poisoning: sodium calcium edetate (IV EDTA) and succimer (oral DMSA). The review synthesises published clinical trial data. It finds that both agents effectively reduce blood lead levels, with DMSA (oral) producing blood lead reductions of approximately 40-60% from baseline in treated children in various trials, and IV EDTA producing similar or greater reductions. DMSA (succimer/Chemet) is FDA-approved for children with blood lead of 45 micrograms per decilitre or higher and requires a prescription. IV EDTA requires clinical administration. Neither is replicable at home without medical supervision, but this review is valuable for understanding the two main prescription chelation options and their comparative efficacy and safety profiles.

Jennifer A. Lowry. "Oral Chelation Therapy for Patients with Lead Poisoning." *Children's Mercy Hospitals and Clinics, Division of Clinical Pharmacology and Medical Toxicology*, 2010.

https://jeffreydachmd.com/wp-content/uploads/2015/07/Lead_Oral_Chelators_J_A_Lowry_2010.pdf [LID 29466]

This is a key lead detox article. Written by a clinical toxicologist in the USA and published circa 2010, this paper reviews oral chelation options for lead poisoning. It focuses primarily on DMSA (succimer/Chemet), which is FDA-approved as an oral chelating agent for children with blood lead levels of 45 micrograms per decilitre or higher. The review discusses DMSA dosing (10 mg/kg three times daily for 5 days, then twice daily for 14 days), efficacy (typically reducing blood lead by 30-50% per course), side effects, and the limitations of chelation (it removes lead from blood but may mobilise bone lead stores). DMSA requires a prescription. The paper also notes that source removal is the most important intervention. Highly relevant for parents of children with elevated blood lead seeking to understand their medical options.

William Shaw. "The Unique Vulnerability of the Human Brain to Toxic Chemical Exposure and the Importance of Toxic Chemical Evaluation and Treatment in Orthomolecular Psychiatry." *Journal of Orthomolecular Medicine*, 2010.

<https://www.national-toxic-encephalopathy-foundation.org/brainvul.pdf> [LID 29502]

This is not primarily a lead detox article - it is a review/commentary on the susceptibility of the human brain to toxic chemical exposure, including heavy metals such as lead, mercury, and aluminium. Published in 2010, it reviews mechanisms by which these toxins damage the brain and discusses the importance of testing and treating toxic chemical exposure in psychiatric patients. The paper recommends nutritional and orthomolecular approaches



(high-dose vitamins, minerals, antioxidants) as well as chelation. No primary subjects were studied. It appeared in a lead detox search because it discusses lead's neurotoxicity and treatment options. The nutritional interventions suggested (vitamins C, B6, zinc, selenium) are accessible at home; chelation protocols require physician oversight.

2019 Volcano Art Prize (VAP) Entry. Artist: Elizabeth O'Brien. Title: Lead detox food and drink to go. Lead-Safety Message: Medical Medium Anthony William recommends this Heavy Metal Detox Smoothie, Juice and Tea, plus leafy green Salads, Celery Sticks and Dates. Description of Work: iPhone 4S Photograph stretched to landscape shape using Word and Paint. URL:

<https://volcanoartprize.com/portfolio-item/lead-detox-food-and-drink-to-go/> [LID 26252]



John Neustadt & Steve Pieczenik. "Heavy-metal Toxicity - With Emphasis on Mercury." ProQuest / International Journal of Integrative Medicine, 2011.

<https://www.proquest.com/openview/066eae3d46118ff4d0214900dccc7351/1?pq-origsite=gscholar&cbl=736337> [LID 29480]

This is not primarily a lead detox article - the emphasis is on mercury. However, it appeared in this search because the paper reviews general heavy metal toxicity and treatment with overlapping relevance to lead. Published in 2011, this US review covers mechanisms of mercury and heavy metal toxicity, diagnostic testing (provoked urine testing, hair analysis), and treatment with DMSA, DMPS, alpha-lipoic acid, NAC, and nutritional support. No primary subjects were studied. The paper's discussion of NAC, ALA, and high-dose antioxidants for supporting detoxification pathways is directly applicable to lead detox and these supplements are available without prescription. The prescription chelator protocols (DMSA, DMPS) require physician oversight.

Chukwuemeka R. Nwokocha et al. "Comparative analysis on the effect of Lycopersicon esculentum (tomato) in reducing cadmium, mercury and lead accumulation in liver." Food and Chemical Toxicology (Science Direct), 2012.

<https://www.sciencedirect.com/science/article/pii/S0278691512002700> [LID 29500]

Yes, this is a food-based lead detox article. This 2012 Nigerian animal study (rats) examined the effect of tomato (*Lycopersicon esculentum*) consumption on hepatic accumulation of cadmium, mercury, and lead. Results showed that tomato consumption significantly reduced lead, cadmium, and mercury levels in liver tissue compared to control animals, attributed primarily to lycopene and other antioxidants reducing oxidative damage and chelating metals. While direct translation to humans requires caution, tomatoes are a common, safe food with well-established antioxidant properties. Regular tomato consumption represents an entirely home-replicable, low-cost dietary strategy to reduce heavy metal accumulation.



The study's relevance is as supporting evidence for a diet rich in antioxidant-containing vegetables.

Eleonore Blaurock-Busch, Omnia R. Amin, Hani H. Dessoki & Thanaa Rabah. "Efficacy of DMSA Therapy in a Sample of Arab Children with Autistic Spectrum Disorder." PubMed Central / Maedica, 2012.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC3566884/> [LID 29511]

Yes, this is a lead detox article with clinical outcome data. This 2012 study (Egypt/Germany collaboration) examined DMSA (succimer) chelation therapy in approximately 44 Arab children diagnosed with autism spectrum disorder (ASD) who had confirmed elevated heavy metal levels including lead. The children received multiple rounds of oral DMSA. Post-treatment urinary excretion of lead and other metals increased significantly, and behavioural symptom scores improved in many children. Blood lead levels were reduced in the treated group. DMSA requires a prescription and medical supervision. The study is relevant because it demonstrates DMSA's effectiveness in children with elevated lead as well as potential cognitive and behavioural benefits from lead reduction. Parents should not administer DMSA without physician oversight.

Margaret E. Sears, Kathleen J. Kerr, Riina I. Bray. "Arsenic, Cadmium, Lead, and Mercury in Sweat - A Systematic Review." Journal of Environmental and Public Health (Wiley), 2012.

<https://onlinelibrary.wiley.com/doi/full/10.1155/2012/184745> [LID 29518]

Yes, this is a lead detox article with direct practical application. This 2012 Canadian systematic review examines published evidence that arsenic, cadmium, lead, and mercury are excreted in human sweat. The review synthesises multiple human studies across several countries. Key finding: lead is measurably present in sweat, and sweat-inducing activities (vigorous exercise, sauna bathing) represent a meaningful route of lead excretion. Some studies cited show sweat lead concentrations comparable to urine lead concentrations. This supports the use of regular exercise and sauna therapy as accessible, home-replicable lead detox strategies. Sauna and exercise are among the most accessible and safest lead detox approaches reviewed in this bibliography. No specific blood lead reduction percentages are quantified, but the evidence base for sweat-based excretion is assessed as credible.

Kapoor Neeti & Tiwari Prakash. "Effects of Heavy Metal Poisoning during Pregnancy." International Research Journal of Environment Sciences (India), 2012. <https://www.karunaflame.com/karunaflame/wp-content/uploads/2017/02/Effects-of-Heavy-Metal-Poisoning-during-Pregnancy.pdf> [LID 29524]

This is a review article on the effects of heavy metal exposure - including lead - during pregnancy, published in India in 2012. It is not a detox protocol study. It reviews the adverse effects of lead, mercury, arsenic, and cadmium on maternal and foetal health, documenting



links to miscarriage, low birth weight, preterm birth, and neurodevelopmental deficits in exposed children. No primary subjects were studied. It appeared in a lead detox search because it discusses the urgency of reducing heavy metal burden in pregnant women and nursing mothers. The paper briefly mentions that chelation is contraindicated during pregnancy and recommends preventive dietary strategies (calcium, iron, vitamin C) as the safe approach. All of the dietary measures discussed are home-replicable.

2019 Volcano Art Prize (VAP)

Entry. Artist: Elizabeth O'Brien. Title: Richard Turnbull's Lead Detox Concoction. Lead-Safety Message: See Richard Turnbull's recipe for this apparently effective garlic & lemon lead detox concoction, at



<https://lead.org.au/lanv19n4/LANv19n4-28.pdf> . Description of Work: iPhone 4S Photographs collaged using Word and Paint. URL: <https://volcanoartprize.com/portfolio-item/richard-turnbulls-lead-detox-concoction/> [LID 20989]

Blaurock-Busch & Albrecht Friedle. "Metal Exposure in the Children of Punjab, India." Clinical Medicine: Therapeutics (SAGE), 2012.

<https://journals.sagepub.com/doi/full/10.4137/CMT.S5154> [LID 29526]

This is primarily an exposure documentation study. Published in 2012, it reports heavy metal levels including blood lead in children in Punjab, India - a follow-up to an earlier cohort study. Children showed significantly elevated lead levels, along with arsenic, mercury, and other metals, in a population with industrial and agricultural contamination exposure. The paper documents correlations between metal levels and developmental disabilities. Treatment discussion is limited; the paper advocates for reduced exposure, nutritional support, and where appropriate medical chelation. Useful as context for understanding how widespread lead exposure affects children's health; less directly applicable to home-based detox protocols.

Victor Raj Mohan Chandrasekaran, Dur-Zong Hsu & Ming-Yie Liu. "Beneficial Effect of Sesame Oil on Heavy Metal Toxicity." Journal of Parenteral and Enteral Nutrition (PubMed), 2013.

<https://pubmed.ncbi.nlm.nih.gov/23744838/> [LID 29492]

Yes, this is a food-based heavy metal detox article. This 2013 study from Taiwan examined sesame oil's protective and chelating effects against heavy metal toxicity in animal models (rats). Sesame oil, rich in sesamol, sesamin, and sesamol, was found to significantly reduce oxidative stress, organ damage, and metal accumulation caused by lead, cadmium, and other



heavy metals in treated animals compared to controls. While this is an animal study, sesame oil and its active compounds have known antioxidant properties in humans. Regular consumption of sesame oil or sesame seeds is a safe, affordable, and home-replicable dietary strategy that may help reduce heavy metal burden. The study does not provide specific blood lead reduction percentages in humans.

Sante Guido Zanella & Paolo Roberti di Sarsina. "Personalization of Multiple Sclerosis Treatments - Using the Chelation Therapy Approach." *EXPLORE: The Journal of Science & Healing (Science Direct)*, 2013.

<https://www.sciencedirect.com/science/article/abs/pii/S1550830713001092>

[LID 29517]

This is not a lead detox article in the conventional sense. It discusses chelation therapy as a personalised treatment approach for multiple sclerosis (MS) patients in Italy, based on the hypothesis that heavy metal accumulation (including lead, mercury, and iron) contributes to MS pathology. The paper reports on a small cohort of MS patients treated with chelation and documents reduced heavy metal levels. It appeared in a lead detox search because it documents the use and outcomes of chelation therapy for reducing heavy metal burden. The paper provides limited blood lead reduction data specific to lead. Chelation in this context was physician-administered. This article is more relevant as background reading on chelation therapy in general than as a practical guide to home-based lead detox.

Natalia V. Solenkova et al. "Metal pollutants and cardiovascular disease - Mechanisms and consequences of exposure." *American Heart Journal (Science Direct)*, 2014.

<https://www.sciencedirect.com/science/article/pii/S0002870314004268> [LID 29485]

This is a cardiovascular medicine review article rather than a home lead detox guide. Published in the USA in 2014, it reviews how environmental metal pollutants - especially lead, cadmium, and arsenic - cause cardiovascular disease through oxidative stress, endothelial dysfunction, hypertension, and atherosclerosis. The paper also discusses the TACT (Trial to Assess Chelation Therapy) trial, which showed that IV EDTA chelation reduced cardiovascular events in post-heart-attack patients. No primary subjects were studied in this paper. It appeared in a lead detox search because of its discussion of chelation therapy (EDTA) as a cardiovascular intervention. It helps understand why lead reduction is important beyond direct toxicity. The chelation therapy discussed requires medical administration.



E. Blaurock-Busch. "Comparison of chelating agents DMPS, DMSA and EDTA for the diagnosis and treatment of chronic metal exposure." *British Journal of Medicine and Medical Research*, 2014.

[https://www.researchgate.net/publication/269809108 Comparison of chelating agents DMPS DMSA and EDTA for the diagnosis and treatment of chronic metal exposure](https://www.researchgate.net/publication/269809108_Comparison_of_chelating_agents_DMPS_DMSA_and_EDTA_for_the_diagnosis_and_treatment_of_chronic_metal_exposure) [LID 29514]

Yes, this is an important lead detox reference article. This 2014 review by a specialist in trace element medicine compares the three main medical chelating agents - DMPS, DMSA, and EDTA - for both diagnosing and treating chronic heavy metal exposure including lead. DMSA is found to be most appropriate for lead, as it is orally bioavailable, FDA-approved for children, and has reasonable selectivity for lead. EDTA (IV or suppository) is a broader chelator also effective for lead. DMPS is used in some European countries but is not FDA-approved in the USA. All three chelating agents require prescription or medical supervision. The paper provides a useful clinical framework for understanding which agent is preferred for lead versus other metals, their dosing, and monitoring requirements.

Diana J. Felton, Stefanos N. Kales & Rose H. Goldman. "An Update and Review of Unconventional Metals Testing and Treatment." *Toxics (MDPI)*, 2014.

<https://www.mdpi.com/2305-6304/2/3/403> [LID 29521]

Yes, this is a relevant lead detox review. Published in the USA in 2014, this paper reviews unconventional approaches to heavy metal testing (provoked/challenge urine testing, hair analysis) and treatment, including both prescription chelation and alternative approaches. The paper is somewhat sceptical of provoked urine testing as a diagnostic tool, noting it may inflate apparent metal burden. It reviews evidence for DMSA, EDTA, and various natural supplements in reducing metal body burden. No primary subjects were studied. The review is valuable for understanding the evidence base - and limitations - for various testing and treatment approaches, both conventional and integrative. It cautions against unsupervised chelation and emphasises that source removal remains the primary intervention.

2019 Volcano Art Prize (VAP) Entry. Artist: Noela Whitton (aged 89). Title: Still life with pears - Vale Margaret Olley. Lead-Safety Message: Pears have long been said to be good for lead detox due to their pectin content but Anthony William says they're good for detoxing all heavy metals. Description of Work: Smartphone photo of oil painting on canvas by Noela Whitton, aged 89 - a copy done in Aged Care Art Therapy class, of "Still life with pears" by the great Australian artist Margaret Olley (1923-2011). URL: <https://volcanoartprize.com/portfolio-item/still-life-with-pears-vale-margaret-olley/> [LID 19561]





Laura Breeher, Marek A. Mikulski, Thomas Czczok, Kathy Leinenkugel & Laurence J. Fuortes. "A cluster of lead poisoning among consumers of Ayurvedic medicine." *International Journal of Occupational and Environmental Health*, 2015.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4727589/> [LID 20181]

This is a lead poisoning and medical chelation treatment article. Published in the USA in 2015, this paper documents a cluster of approximately 12 adults who developed lead poisoning after consuming Ayurvedic herbal supplements containing intentionally added lead, mercury, or arsenic as part of traditional formulations. Blood lead levels in affected patients ranged from moderately to severely elevated (some exceeding 50-70 micrograms per decilitre). The paper is an important warning that some herbal supplements - particularly Ayurvedic, traditional Chinese, and some South Asian products - may contain added or contaminating heavy metals. Home lesson: verify the heavy metal content of any herbal supplement before use by sourcing only third-party-tested products.

Hyun Soo Kim, Yeo Jin Kim & Young Rok Seo. "An Overview of Carcinogenic Heavy Metal - Molecular Toxicity Mechanism and Prevention." *Journal of Cancer Prevention (South Korea)*, 2015.

<https://pmc.ncbi.nlm.nih.gov/articles/PMC4699750/> [LID 29479]

This is a scientific review on heavy metal carcinogenicity and prevention rather than a practical detox guide. Published in South Korea in 2015, it reviews molecular mechanisms by which lead, cadmium, arsenic, chromium, and mercury cause cancer - including DNA damage, epigenetic changes, and interference with DNA repair. Prevention strategies briefly discussed include antioxidant supplementation (vitamins C, E, selenium) and chelation. No primary subjects were studied. It appeared in a lead detox search because of its discussion of prevention through antioxidants. The antioxidant strategies mentioned are accessible at home. Useful as motivation for taking lead reduction seriously, given the documented links between lead exposure and cancer risk.

Ehimen C. Aneni, Esteban Escolar & Gervasio A. Lamas. "Chronic Toxic Metal Exposure and Cardiovascular Disease - Mechanisms of Risk and Emerging Role of Chelation Therapy." *Current Atherosclerosis Reports (Springer Nature)*, 2016. <https://link.springer.com/article/10.1007/s11883-016-0631-0> [LID 29469]

Yes, this is a relevant lead detox article in the cardiovascular context. Published in the USA in 2016, this review by TACT trial investigators examines how chronic exposure to lead, cadmium, and arsenic causes cardiovascular disease and how chelation therapy (primarily IV EDTA) may reduce that risk. The TACT trial in over 1,700 post-heart-attack patients showed that IV EDTA chelation significantly reduced subsequent cardiovascular events, with particularly strong benefits in diabetic patients. Lead burden was associated with increased cardiovascular risk. The paper supports the use of medical EDTA chelation in cardiovascular



patients with metal burden. IV EDTA requires clinic administration. The paper also briefly mentions nutritional antioxidants as supportive measures.

Maria Elena Ferrero. "Rationale for the Successful Management of EDTA Chelation Therapy in Human Burden by Toxic Metals." BioMed Research International (Wiley), 2016.

<https://onlinelibrary.wiley.com/doi/full/10.1155/2016/8274504> [LID 29510]

This one is an important lead detox review article. Published in Italy in 2016, this paper reviews the scientific rationale and clinical evidence for EDTA chelation therapy in humans with elevated toxic metal burden, including lead. It covers both the pharmacology of EDTA and clinical outcomes data from multiple studies and trials, including the TACT trial. The paper discusses both IV EDTA (clinic-administered) and oral EDTA (OTC-available) and notes that while oral EDTA has lower bioavailability (approximately 5-18% absorbed), it can still produce meaningful increases in faecal and urinary metal excretion. Mineral replacement (calcium, magnesium, zinc) alongside EDTA is emphasised. Rectal suppository EDTA is also mentioned as a middle-ground option. Of the EDTA delivery routes, oral and suppository forms are home-replicable without prescription.



2017 Volcano Art Prize (VAP) Entry. Artist: Cherry Qin (age 12). Title: Kid Eating Apples. Lead-Safety Message: A healthy apple a day keeps the lead away as it contains lots of pectin. Description of Work: Colour pencil. URL: <https://volcanoartprize.com/portfolio-item/kid-eating-apples/> [LID 18574]

Michele Payne-Salomon. "The Secrets of Oral Chelation." GALE Academic OneFile, 2017.

<https://go.gale.com/ps/i.do?id=GALE%7CA165167534&sid=googleScholar&v=2.1&it=r&linkaccess=abs&issn=&sw=w&p=AONE&userGroupName=anon%7Ec7bdb37c&aty=open-web-entry> [LID 29472]

Yes, this is a directly relevant lead detox article focused on home-accessible approaches. Published in 2017, this article reviews oral chelation strategies for heavy metal removal including lead. It covers prescription oral DMSA, oral EDTA, and natural chelating supplements such as modified citrus pectin, chlorella, cilantro, garlic, and N-acetyl cysteine. The distinction between prescription agents and OTC supplements is made clear. No primary clinical subjects are studied; it is a practitioner/consumer review. The article is practical and accessible, making it particularly valuable for someone seeking to understand the spectrum of oral chelation options from prescription to grocery-store-accessible. Natural chelating agents discussed are fully home-replicable.



ACAM (American College for Advancement in Medicine). "IV Chelation Therapy - Finding a Doctor Who Will Test for and Treat Heavy Metal Toxicity." ACAM Integrative Medicine Blog, 2017.

<https://www.acam.org/blogpost/1092863/ACAM-Integrative-Medicine-Blog?tag=toxins> [LID 29505]

Yes, this is a practical consumer-oriented lead detox article. Published in 2017, this blog article guides patients in finding qualified practitioners who test for and treat heavy metal toxicity including lead. It explains what IV chelation therapy is, what testing to request (blood lead, urine metals, hair mineral analysis), and what types of practitioners offer chelation services (integrative MDs, naturopathic doctors, osteopaths). No clinical subjects or outcomes data are presented. The article is most useful as a guide for someone who wants to access medical-grade chelation therapy (IV EDTA or prescription DMSA) and needs to know how to find a qualified provider. All the preliminary testing options mentioned can be self-ordered in many US states.

Aditya Marianti, Debi Anatasara & Fachrudyn Faisal Ashar. "Chitosan as Chelating and Protective Agents from Lead Intoxication in Rat." Biosaintifika: Journal of Biology & Biology Education (Indonesia), 2017.

<https://journal.unnes.ac.id/nju/biosaintifika/article/view/8943> [LID 29513]

Yes, this is a lead detox animal study. Published in Indonesia, this study examined chitosan - a natural polysaccharide derived from shellfish exoskeletons - as a chelating agent for lead intoxication in rats. Rats were exposed to lead and then given oral chitosan at various doses. Results showed that chitosan administration significantly reduced blood lead levels and mitigated lead-induced organ damage in liver and kidneys compared to controls. Chitosan is thought to chelate lead in the gastrointestinal tract, reducing absorption and increasing faecal excretion. Chitosan supplements are commercially available without prescription, commonly sold as weight management and cholesterol-lowering supplements. This animal study supports the use of chitosan as a home-accessible oral lead-binding supplement, though human clinical trials in lead poisoning specifically are limited.

Dietrich Klinghardt. "A Comprehensive Review of Heavy Metal Detoxification and Clinical Pearls from 30 Years of Medical Practice." First published in 2006; Sophia Health Institute, 2018.

<https://static1.squarespace.com/static/5a3438fadoe62852ac16c76d/t/5a8dbac2f9619ac30ea665a9/1519237827912/HeavyMetalDetox.pdf> [LID 29467]

This is one of the most comprehensive lead and heavy metal detox articles in this bibliography. Dr. Dietrich Klinghardt - an integrative physician practising in the USA with extensive experience in neurotoxicology - provides a thorough review of heavy metal detoxification drawn from 30 years of clinical practice. The paper covers testing modalities (blood, urine, hair, provoked urine), the biology of metal storage (bone, brain, fat tissue), and a comprehensive protocol covering: nutritional preparation (vitamins C, B, minerals), natural



binders (chlorella, cilantro, zeolite, modified citrus pectin, MSM), far-infrared sauna for sweat excretion, and when and how to use prescription chelators (DMSA, DMPS, EDTA). While the prescription-chelator components require physician oversight, much of the protocol - sauna, dietary changes, chlorella, MCP, vitamins - is fully home-replicable. This is among the most practically useful documents in this bibliography.

Marissa Hauptman, Bryan Stierman & Alan D. Woolf. "Children With Autism Spectrum Disorder and Lead Poisoning - Diagnostic Challenges and Management Complexities." *Clinical Pediatrics / PubMed Central*, 2019.
<https://pmc.ncbi.nlm.nih.gov/articles/PMC6982422/> [LID 29486]

Yes, this is a lead detox article with particular relevance to children with autism. Published in the USA in 2019, this paper reviews the overlapping presentations of autism spectrum disorder (ASD) and lead poisoning - both can cause speech delay, hyperactivity, and behavioural problems - and how this complicates diagnosis and management. It reviews evidence for chelation (DMSA) in ASD children with elevated lead levels, noting that treating lead poisoning in autistic children may improve some symptoms but results are mixed. A clinical framework for testing and treating lead in ASD children is provided. Chelation requires medical supervision. Home-relevant takeaway: children with ASD should routinely have blood lead levels checked, and reducing environmental lead exposure (paint, soil, water, some supplements) is essential.

2019 Volcano Art Prize (VAP) Entry. Artist: William Nguyen (age 11). Title: Kiwi fruit are full of Vitamin C. Lead-Safety Message: Kiwi fruit has a lot of antioxidants which are helpful in eliminating lead from the body. Include them in your diet. Description of Work: Colour pencil URL:
<https://volcanoartprize.com/portfolio-item/kiwi-fruit-are-full-of-vitamin-c/> [LID 22024]



Jose Joaquin Merino et al. "The Long-Term Algae Extract (Chlorella and Fucus sp) and Aminosulphurate Supplementation Modulate SOD-1 Activity and Decrease Heavy Metals (Hg⁺⁺, Sn) Levels in Patients with Long-Term Dental Titanium Implants and Amalgam Fillings." *Antioxidants (MDPI)*, 2019.
<https://www.mdpi.com/2076-3921/8/4/101> [LID 29512]

This is a relevant supplement-based heavy metal detox article, though focused on mercury and tin rather than lead. Published in Spain in 2019, this human clinical study examined the effect of long-term supplementation with chlorella algae extract and fucus (bladderwrack seaweed) combined with taurine in patients with dental amalgam fillings and titanium implants. The study found significant reductions in mercury and tin levels alongside



modulation of antioxidant enzyme activity. While lead was not the primary target, chlorella is widely used in lead detox protocols due to its documented heavy metal binding properties. All supplements used (chlorella, fucus, taurine) are available without prescription. The study supports the general principle that algae-based supplementation can reduce heavy metal body burden and is replicable at home.

Chetan Rajak, Neelu Singh & Poonam Parashar. "Metal toxicity and natural antidotes - prevention is better than cure." Environmental Science and Pollution Research (Springer Nature), 2020.

<https://link.springer.com/article/10.1007/s11356-020-10783-3> [LID 29468]

Yes, this is a highly relevant food- and supplement-based lead detox review. Published in India in 2020, this comprehensive review covers natural antidotes to heavy metal toxicity including lead, from the perspective that prevention through natural agents is preferable to pharmaceutical chelation. Reviewed natural agents include: garlic (allicin chelates lead), coriander/cilantro, onion, green tea (EGCG reduces metal absorption), turmeric (curcumin chelates and reduces oxidative stress), vitamin C, vitamin E, selenium, zinc, and various medicinal herbs. Human, animal, and in-vitro studies are summarised. No primary subjects were studied. This paper provides a practical framework for constructing a home-based lead reduction diet and supplement programme. All agents discussed are accessible without prescription and most are available as everyday foods or common supplements.

Akshatha Shetty & Dr Pushparaja Shetty. "The Effect of Micronutrients on Lead (Pb) Toxicity: Lead interaction with Micronutrients." Research Journal of Dentistry and Nutritional Medicine, 2020.

<https://rjdnmd.org/index.php/RJDNDMD/article/view/691/534> [LID 29474]

Yes, this is a highly practical lead detox article focused on accessible nutritional approaches. Published in India in 2020, this review comprehensively examines how specific micronutrients compete with, displace, or counteract lead toxicity. Key findings: calcium, iron, and zinc all compete with lead for absorption in the gut - ensuring adequate intake of these minerals significantly reduces lead absorption. Vitamin C chelates lead directly and promotes its urinary excretion. Vitamin E and selenium reduce lead-induced oxidative damage. Vitamin D affects lead deposition in bone. The paper reviews human and animal studies supporting each nutrient's role. All micronutrients discussed are available OTC as supplements, and dietary sources are listed. This constitutes a fully home-replicable nutritional protocol for reducing lead burden and mitigating its harm - one of the most practically useful papers in this bibliography.



Joanna M. Gaitens et al. "The management of embedded metal fragment patients and the role of chelation therapy - A workshop of the Dept of Veterans Affairs / Walter Reed National Medical Center." American Journal of Industrial Medicine (Wiley), 2020.

<https://onlinelibrary.wiley.com/doi/abs/10.1002/ajim.23098> [LID 29496]

This is a specialised military medicine article rather than a general lead detox guide. Published in the USA in 2020, it reports on a Department of Veterans Affairs workshop on managing US military veterans with embedded metal fragments (bullet/shrapnel fragments, many containing lead). The paper reviews evidence on when chelation therapy is appropriate for such patients, concluding that chelation is generally not recommended for asymptomatic patients with stable blood lead levels from embedded fragments, as it may remobilise lead from storage sites. Medical monitoring and symptom management are recommended instead. This paper reinforces that chelation decisions for elevated lead require medical supervision and careful risk-benefit assessment.

Rehab M. Abdel-Megeed. "Probiotics - a Promising Generation of Heavy Metal Detoxification." Biological Trace Element Research (Springer Nature), 2020.

<https://link.springer.com/article/10.1007/s12011-020-02350-1> [LID 29516]

Yes, this is an accessible lead detox article. Published in Egypt in 2020, this review examines the evidence for probiotic bacteria as agents for heavy metal detoxification, including lead. Multiple strains of Lactobacillus and Bifidobacterium have been shown in laboratory and animal studies to bind lead in the gut, reduce intestinal absorption, and increase faecal excretion. Some human studies also show reduced blood heavy metal levels with probiotic supplementation. The paper reviews mechanisms: probiotics bind metals to cell wall components (peptidoglycan, teichoic acids), produce organic acids that chelate metals, and may stimulate the body's own detox enzyme systems. Probiotics are widely available without prescription, inexpensive, and safe for most people including children. This represents one of the most accessible lead detox approaches, fully replicable at home. Specific strains cited include Lactobacillus rhamnosus, L. plantarum, and L. acidophilus.

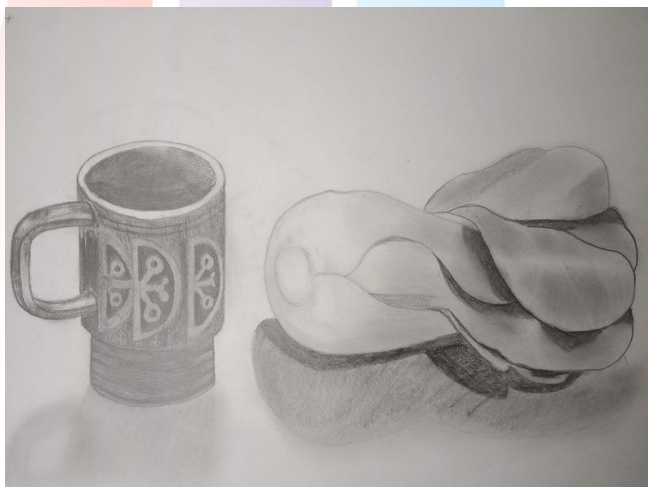
Faraz Ahmad & Ping Liu. "(Ascorb)ing Pb Neurotoxicity in the Developing Brain." Antioxidants (MDPI), 2020. <https://www.mdpi.com/2076-3921/9/12/1311> [LID 29533]

Yes, this is an important lead detox article focused on vitamin C (ascorbic acid). Published in 2020, this review examines the evidence that vitamin C protects the developing brain from lead (Pb) neurotoxicity. Vitamin C has multiple mechanisms: it directly chelates lead and promotes its urinary excretion, competes with lead for absorption at the gut level, reduces lead-induced oxidative stress, and protects neurons from lead-induced damage. Several human epidemiological studies cited show that higher vitamin C status is associated with lower blood lead levels in children. Animal studies show that vitamin C supplementation



significantly reduces blood and brain lead levels. This is one of the most accessible and evidence-supported lead detox interventions: vitamin C supplements are inexpensive, available without prescription, safe at moderate doses, and can be given to children. Applicable to both prevention and active detox, fully home-replicable.

2019 Volcano Art Prize (VAP) Entry. Artist: Mark Ju (age 13). Title: Bok Choy. Lead-Safety Message: All leafy green vegetables remove lead from the body. Description of Work: Colour pencil. URL: <https://volcanoartprize.com/portfolio-item/bok-choy/> [LID 23995]



Haisu Liu et al. "Garlic (*Allium sativum*) and Fu-ling (*Poria cocos*) mitigate lead toxicity by improving antioxidant defense mechanisms and chelating ability in the liver of grass carp (*Ctenopharyngodon idella*)." *Ecotoxicology (Springer Nature)*, 2021. <https://link.springer.com/article/10.1007/s10646-021-02405-6> [LID 29528]

Yes, this is a food-based lead detox article. Published in China in 2021, this animal study examined the effects of garlic (*Allium sativum*) and a traditional Chinese medicinal mushroom, Fu-ling (*Poria cocos*), on lead toxicity in grass carp fish exposed to lead-contaminated water. Fish given garlic and Fu-ling showed significantly lower hepatic lead accumulation, improved antioxidant enzyme activity, and reduced oxidative damage compared to controls. Garlic's organosulphur compounds (allicin, diallyl sulphide) are known to chelate heavy metals. While the subjects are fish, the mechanisms are biochemically relevant to mammals. Garlic is an accessible, inexpensive food fully replicable at home. Poria cocos mushroom is also available as a supplement in traditional Chinese medicine outlets. This study adds to a body of evidence supporting garlic as a dietary lead detox aid.

Osikemekha Anthony Anani et al. "Insights to proteomics and metabolomics metal chelation in food crops." *Journal of Food Measurement and Characterization (Springer Nature)*, 2022. <https://link.springer.com/article/10.1007/s42485-022-00090-5> [LID 29493]

This is a technical scientific review on the mechanisms by which plants chelate heavy metals, published in 2022. It uses proteomics and metabolomics approaches to understand how food crops produce phytochelatin and metallothionein compounds that bind and sequester heavy metals including lead. While primarily plant-science focused, it is relevant to lead detox because it identifies which food crops accumulate vs. exclude heavy metals - important for dietary lead reduction (avoiding leafy greens grown in contaminated soil) - and provides insights into plant-derived dietary chelating compounds. The paper is more technical than



practical but supports the dietary lead reduction strategy of consuming foods with documented metal-chelating properties. No human or animal subjects studied for detox outcomes.

Xingyao Long et al. "Preventive Effect of *Limosilactobacillus fermentum* SCHY34 on Lead Acetate-Induced Neurological Damage in SD Rats." *Frontiers in Nutrition*, 2022.

<https://www.frontiersin.org/journals/nutrition/articles/10.3389/fnut.2022.852012/full> [LID 29499]

Yes, this is a probiotic lead detox study. Published in China in 2022, this animal study (Sprague-Dawley rats) examined a specific probiotic strain - *Limosilactobacillus fermentum* SCHY34 - for its ability to prevent lead-induced neurological damage. Rats given oral lead acetate with concurrent probiotic supplementation showed significantly lower blood lead levels (approximately 30-40% lower than lead-only controls), reduced neurological damage markers, better antioxidant status, and lower hippocampal lead accumulation. While the specific SCHY34 strain may not be widely commercially available, broadly available *Lactobacillus fermentum* strains are found in many commercial probiotic products. The study reinforces the principle that probiotic supplementation during lead exposure reduces absorption and neurological impact - home-replicable with commercially available probiotics.

Runquin Chen, Huaijun Tu & Tingtao Chen. "Potential Application of Living Microorganisms in the Detoxification of Heavy Metals." *Foods* (MDPI), 2022.

<https://www.mdpi.com/2304-8158/11/13/1905> [LID 29527]

Yes, this is a relevant heavy metal detox review. Published in China in 2022, this review examines the use of various living microorganisms - bacteria, yeast, algae, and fungi - for heavy metal detoxification including lead. Multiple probiotic strains are shown to adsorb and sequester lead through cell wall binding, biofilm formation, and enzymatic transformation. Yeast species including *Saccharomyces cerevisiae* also show lead-binding capacity. While most evidence is from in-vitro or animal studies, the principle that probiotic microorganisms can reduce gastrointestinal lead absorption is well-supported. Commercial probiotics containing *Lactobacillus* and *Bifidobacterium* strains are the most accessible home-replicable application of this science. The review provides mechanistic basis for why probiotic supplementation may complement other lead detox strategies.

Sonia Sethi. "Phytochelatin - Heavy Metal Detoxifiers in Plants." *Springer Nature* (Chapter in book: *Advanced and Innovative Approaches of*

***Environmental Biotechnology in Industrial Wastewater Treatment*), 1 Aug 2023. https://link.springer.com/chapter/10.1007/978-981-99-2598-8_16 [LID 29483]**

This is primarily a plant biology and biochemistry chapter rather than a human lead detox guide. It reviews phytochelatin - small peptides produced by plants in response to heavy



metal stress - and their role in sequestering and detoxifying metals including lead within plant tissues. The chapter covers synthesis, regulation, and mechanism of phytochelatins, and discusses applications in phytoremediation (using plants to clean contaminated soil). Its relevance to human lead detox is indirect: understanding which plants accumulate vs. exclude heavy metals is important for dietary lead reduction (avoiding leafy greens grown in contaminated soil), and for understanding plant-derived dietary chelating compounds. No human subjects are involved. Relevant as academic background context.

2025 Volcano Art Prize (VAP) Entry.

Artist: Tony Lennon.

Title: Growing Garlic.

Lead-Safety Message:

Grow your own garlic for maximum health benefits and minimum food travel miles! Near the winter solstice,



plant good organic garlic cloves tip-upwards just below the surface 10 cm apart in deep rich well-drained elevated soil and water in well. Near the summer solstice pick the whole plants and hang up in a well-ventilated room in your home with no direct sun. Remember to keep the best bulbs for next season for seeds so to speak. You will then end up with garlic suited to your soil and location.

Description of Work: Smart phone photos collaged together. URL:

<https://volcanoartprize.com/portfolio-item/growing-garlic/> [LID 28958]

Neluwa-Liyanage R. Indika et al. "Abnormal Porphyrin Metabolism in Autism Spectrum Disorder and Therapeutic Implications." *Molecular Neurobiology* (Springer Nature), 2023. <https://link.springer.com/article/10.1007/s12035-023-03722-z> [LID 29487]

This is relevant to lead detox in children with autism, though it is primarily a biochemistry review. Published in 2023, this paper examines abnormal porphyrin metabolism in autism spectrum disorder (ASD), noting that elevated porphyrins in urine are a marker of heavy metal toxicity - particularly lead and mercury - that interferes with haem synthesis. The paper explains how lead inhibits key enzymes in the porphyrin pathway (ALA-D, ferrochelatase), producing a characteristic pattern of elevated urinary porphyrins that can serve as a biomarker of lead burden. Treatment implications include chelation to reduce metal burden and support for the porphyrin pathway with cofactors (zinc, B6, B12). Useful for clinicians and informed parents as it explains why children with ASD may benefit from heavy metal testing using porphyrin panels. Nutritional cofactors are home-accessible; chelation requires medical supervision.



Netranandini Lakka et al. "Potential diagnostic biomarkers for lead-induced hepatotoxicity and the role of synthetic chelators and bioactive compounds." *Toxicology Research (Oxford)*, 2023. <https://academic.oup.com/toxres/article-abstract/12/2/178/7076144> [LID 29504]

Yes, this is a lead detox article. Published in India in 2023, this review examines biomarkers for lead-induced liver damage and evaluates both pharmaceutical chelators and natural bioactive compounds as treatments. Synthetic chelators (DMSA, EDTA) are reviewed alongside bioactive food compounds including curcumin, quercetin, silymarin (milk thistle), vitamin C, and N-acetyl cysteine, all of which have documented hepatoprotective and lead-chelating or antioxidant properties in animal models. These bioactive compounds are all available without prescription. The paper is particularly relevant for adults concerned about lead's effects on liver health, and suggests that a home protocol combining dietary antioxidants and liver-supportive herbs (milk thistle, turmeric) may complement more aggressive chelation.

Michael Gerber. "Thirty Years of Progress in Cardiovascular Health: Intravenous Disodium Edetate (chelation)." *Chelation.me*, 2023. <https://chelation.me/gerber-thirty-years/> [LID 29508]

Yes, this is a lead/metal detox article from a physician's perspective. Published online in December 2023, Dr. Michael Gerber - an integrative physician - reviews three decades of clinical experience and research on IV disodium EDTA chelation therapy for cardiovascular and general heavy metal detoxification including lead. He discusses the TACT trial results, his own clinical experience, and the practical administration of IV EDTA chelation. The paper argues that chelation's cardiovascular benefits are substantially mediated by removal of lead and other metals from arterial tissues. IV EDTA requires clinical administration and is not home-replicable. However, the paper provides valuable context for adults with cardiovascular disease and documented lead burden who are considering chelation therapy with an integrative physician.

Fereshteh Ansari et al. "The role of probiotics in improving food safety: detoxification of heavy metals and chemicals." *Toxin Reviews (Taylor & Francis)*, 2024. <https://www.tandfonline.com/doi/abs/10.1080/15569543.2023.2283768> [LID 29473]

Yes, this is a practical lead detox review focused on probiotics. Published in 2024, this paper comprehensively reviews the evidence for probiotic bacteria in detoxifying heavy metals including lead. It covers mechanisms: gut microbiome composition influences metal absorption; specific bacterial strains bind lead in the gut lumen reducing intestinal uptake; probiotics increase faecal lead excretion; and certain probiotic metabolites chelate metals. Human and animal studies showing blood lead reductions with probiotic supplementation are reviewed. Dietary sources of probiotics (fermented foods: yoghurt, kefir, kimchi,



sauerkraut, miso) as well as commercial probiotic supplements can both be used. This is a fully home-replicable approach, particularly appropriate for children and pregnant women who should not use pharmaceutical chelators. The paper suggests combining probiotics with other dietary interventions (high-fibre diet, antioxidants) for best effect.

Adil Hussain & Asma Saeed. "Hazardous or Advantageous - Uncovering the Roles of Heavy Metals and Humic Substances in Shilajit with Emphasis on Heavy Metals Toxicity and Their Detoxification Mechanisms." *Biological Trace Element Research (Springer Nature)*, 2024.

<https://link.springer.com/article/10.1007/s12011-024-04109-4> [LID 29481]

This article is relevant to lead detox primarily as a warning. Published in 2024, it critically reviews shilajit - a mineral pitch/resin used in Ayurvedic and traditional medicine - noting that while shilajit contains beneficial minerals and humic/fulvic acids with claimed detox properties, many commercial preparations contain significant heavy metal contamination including lead, arsenic, and mercury. The paper reviews both the potential benefits (fulvic acid may chelate some metals) and risks (adding to heavy metal burden). The conclusion is nuanced: purified, tested shilajit preparations may have some metal-chelating benefit, but unpurified or poorly regulated products may increase lead exposure. Critical practical takeaway: any Ayurvedic supplement, including shilajit, should be third-party tested for heavy metals before use.

2021 Volcano Art Prize (VAP) Entry. Artist: Alex Jewson.
Title: We're growing beans, carrots and basil. Lead-Safety
Message: I already know that I have to wash the garden soil off
my hands before I help mummy make my favourite chilli basil
chicken! Description of Work: iPhone photo URL:

<https://volcanoartprize.com/portfolio-item/were-growing-beans-carrots-and-basil/> [LID 27731]



Salimi Zohreh et al. "Iron chelators as therapeutic agents in diseases." *Annals of Medicine & Surgery*, 2024. https://journals.lww.com/annals-of-medicine-and-surgery/fulltext/2024/05000/iron_chelators_as_therapeutic_agents_in_diseases.69.aspx [LID 29484]

This is not primarily a lead detox article. It focuses on iron chelation therapy for diseases of iron overload such as thalassaemia and haemochromatosis. It appeared in a lead detox search because many chelating principles overlap - EDTA, for example, chelates both iron and lead - and because understanding iron-lead competition is relevant (adequate iron intake reduces lead absorption). The iron chelators discussed (deferoxamine, deferasirox, deferiprone) are prescription-only and not relevant to typical home lead detox. Home-relevant takeaway: ensuring adequate (but not excessive) iron stores reduces lead absorption at the gut level, since iron and lead compete for the same transporter (DMT1).



Jessica Ceramella et al. "Phytochemicals Involved in Mitigating Silent Toxicity Induced by Heavy Metals." Foods (MDPI), 2024. <https://www.mdpi.com/2304-8158/13/7/978> [LID 29531]

Yes, this is a comprehensive food-based lead detox article. Published in Italy in 2024, this review examines phytochemicals - bioactive plant compounds - that mitigate heavy metal toxicity including lead. Phytochemicals reviewed include polyphenols (quercetin, resveratrol, curcumin), carotenoids (lycopene, beta-carotene), glucosinolates (from cruciferous vegetables), allicin (from garlic), chlorophyll (from green vegetables), and pectin (from citrus fruits and apples). Each is assessed for its ability to chelate lead, reduce lead absorption, or protect against lead's oxidative damage. Human, animal, and in-vitro evidence is summarised. This is one of the most practically useful papers in the bibliography for home use: a diet rich in coloured vegetables, fruits, garlic, onions, cruciferous vegetables, and spices such as turmeric translates directly into everyday food choices that collectively reduce lead burden. Fully home-replicable.

Roopkumar Sangubotla et al. "Zinc-Mediated Defenses Against Toxic Heavy Metals and Metalloids - Mechanisms, Immunomodulation, and Therapeutic Relevance." International Journal of Molecular Sciences (MDPI), 2025. <https://www.mdpi.com/1422-0067/26/19/9797> [LID 29475]

Yes, this is a highly relevant lead detox article with direct practical application. Published in 2025, this comprehensive review examines how zinc protects against toxic heavy metals including lead. Key mechanisms: zinc and lead compete for the same intestinal absorption transporters (DMT1), so adequate zinc intake significantly reduces lead absorption in the gut; zinc upregulates metallothionein proteins that bind and sequester lead; zinc supports antioxidant defences against lead-induced oxidative stress; and zinc modulates immune responses disrupted by lead. Multiple human and animal studies are reviewed. Zinc deficiency is identified as a major risk factor for lead toxicity. Zinc supplementation at standard doses is one of the most accessible, safe, and evidence-supported home strategies for reducing lead toxicity and absorption. Fully replicable at home without medical supervision.

George J. Kontoghiorghes. "Development of Iron-Chelating Antioxidant Nutraceuticals and Natural Products as Pharmaceuticals for Clinical Use in Diseases with Free Radical Pathologies." PubMed Central, 2025. <https://pmc.ncbi.nlm.nih.gov/articles/PMC12567410/> [LID 29495]

This is relevant to lead detox in an indirect way. This review by a leading chelation researcher discusses the development of nutraceuticals and natural products that combine iron-chelating with antioxidant properties - such as polyphenols (curcumin, quercetin, resveratrol), vitamins (C, E), and plant extracts - for use in diseases driven by free radical pathology. While the primary focus is iron overload and oxidative stress diseases, many of the nutraceuticals reviewed also have lead-chelating or lead-protective properties. The paper



appeared in a lead detox search because polyphenols that chelate iron also bind other divalent metals including lead, and because oxidative stress is a common pathway in both iron and lead toxicity. All nutraceuticals discussed are available without prescription. Supports incorporating polyphenol-rich foods and supplements into a lead detox protocol.

Angie Arriescado. "Can Antioxidants Like Glutathione Help With Heavy Metal Detox?" Intelligent Labs (EU), 2025. <https://eu.intelligentlabs.org/en-gb/heavy-metal-detox/> [LID 29507]

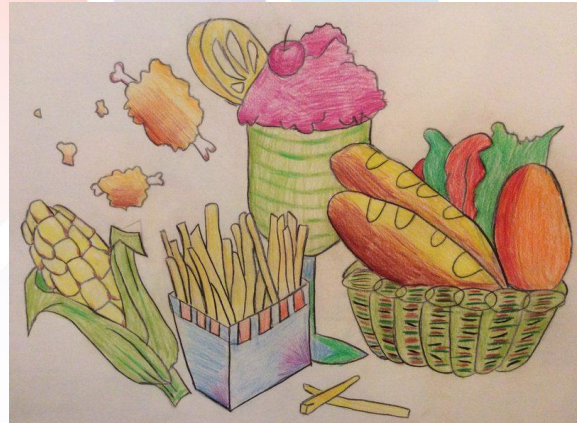
Yes, this is a practical, consumer-oriented lead detox article. Published in February 2025 by a supplements company (Intelligent Labs), this article reviews the evidence for antioxidants - particularly glutathione, N-acetyl cysteine (NAC), alpha-lipoic acid, and vitamin C - in heavy metal detoxification including lead. The article summarises how glutathione binds to heavy metals including lead through glutathione-S-transferase enzymes and facilitates their excretion via bile. The review discusses liposomal and reduced glutathione supplements, noting their improved bioavailability compared to standard oral supplements. NAC is highlighted as a glutathione precursor. All supplements discussed are available without prescription. Note: as a supplements company publication, independence of the information should be considered alongside peer-reviewed sources.

Rustam Turakulov et al. "Role of medicinal plants in mitigating environmental toxin effects - Protective and detoxification mechanisms." Caspian Journal of Environmental Sciences, article in press, corrected proof online 4 Sept 2025. https://cjes.guilan.ac.ir/article_9030.html [LID 29482]

This is a lead detox review focused on medicinal plants. Published by researchers in Central Asia/Uzbekistan, this comprehensive review documents medicinal plants with protective and detoxification effects against environmental toxins including heavy metals such as lead. Plants reviewed include turmeric (curcumin), garlic, cilantro, milk thistle, ginkgo biloba, green tea, rosemary, and various others with documented antioxidant, hepatoprotective, and metal-chelating properties. The paper is relevant to home practitioners because all of the plants discussed are available as foods, teas, or supplements without prescription. It provides a useful catalogue of plant-based agents to incorporate into a dietary lead reduction strategy, with mechanistic support.



2017 Volcano Art Prize (VAP) Entry. Artist: Mark Ju (age 11). Title: Fast Food. Lead-Safety Message: Watch out what you consume. Aim at lead free, healthy diet. Description of Work: Colour pencil drawing. URL: <https://volcanoartprize.com/portfolio-item/fast-food/> [LID 18569]



Nurshash Zhexenbay et al. "Using Pectin as Heavy Metals Detoxification Agent to Reduce Environmental Contamination and Health Risks." *Procedia of Environmental Science, Engineering and Management*, 2025. https://www.procedia-esem.eu/pdf/issues/2020/no4/8_60_Zhexenay_20.pdf [LID 29509]

Yes, this is a relevant lead detox article focused on an accessible food-derived agent. This paper by Kazakh researchers reviews pectin - a soluble dietary fibre found in apple skins, citrus pith, and many fruits and vegetables - as a heavy metal detoxification agent. Pectin binds to lead and other heavy metals in the gastrointestinal tract, reducing their absorption and increasing their faecal excretion. The paper reviews in-vitro and animal studies demonstrating pectin's lead-binding capacity, and discusses its food safety applications. Modified citrus pectin (MCP), which is more bioavailable than standard pectin, is the pharmaceutical form studied for systemic lead chelation (see LID 12017, LID 29515). Standard pectin from foods or as a supplement is available without prescription. Eating more apples, citrus fruits, and other pectin-rich foods is a simple home-replicable strategy for reducing gut lead absorption.

Subhashini Sivaji et al. "Detoxification and Herbal Cleanses" Taylor and Francis Group (Chapter from the Book: "Exploring Herbal Synergies for Optimal Human Health"), 2026.

<https://www.taylorfrancis.com/chapters/edit/10.1201/9781003539131-6/detoxification-herbal-cleanses-subhashini-sivaji-arpita-oriel-lavanya-jayaraman-swarnalingam-thangavelu-ramasamy-vasantharekha-barathi-seetharaman-gaurav-mudgal> [LID 29470]

Yes, this is a relevant lead detox chapter (publication 2026). This book chapter reviews herbal and natural approaches to detoxification, including removal of heavy metals such as lead. It covers traditional and evidence-based herbal agents with documented detoxification properties: milk thistle (liver support), dandelion (bile stimulation), cilantro, garlic, ginger, turmeric, and algae (chlorella, spirulina). The mechanisms by which these herbs support detox pathways (Phase I and II liver detox, biliary excretion, antioxidant activity) are reviewed. The chapter emphasises integrating herbal approaches with dietary strategies. All herbs discussed are available without prescription as teas, tinctures, powders, or capsules. Home-replicable as part of a dietary and supplement-based lead reduction programme.



Romi Singh, Jayant Kumar, Mohini Chaurasia, Abhiram Kumar & S.J.S. Flora. "Role of Micronutrients in the Treatment of Metal-Metalloid Toxicity - Mechanisms and Therapeutic Potential." Springer Nature (book chapter), 2026. https://link.springer.com/chapter/10.1007/978-3-032-14445-4_12 [LID 29488]

Yes, this is a comprehensive and practically applicable lead detox reference. Published by Indian researchers with expertise in metal toxicology (S.J.S. Flora is a leading researcher in heavy metal chelation), this chapter reviews the role of micronutrients in treating metal and metalloid toxicity including lead. The chapter covers: how zinc, iron, and calcium compete with lead for absorption; how vitamins C, E, and B-complex support detox pathways and reduce lead's oxidative and biochemical damage; how selenium supports glutathione peroxidase activity; and how combined micronutrient protocols may reduce lead burden comparably to some pharmaceutical chelators in mild-to-moderate exposure. The paper reviews both animal and human studies. All micronutrients discussed are OTC-available. This is one of the most useful scientific references for constructing a comprehensive home-based nutritional protocol for lead detox.

Benjamin Busch. "IV Chelation Therapy - Benefits and How It Works." ViveWell Health, 2026. <https://vivewell.health/blog/about-iv-chelation-therapy/> [LID 29489]

Yes, this is a practical lead detox article from an integrative health clinic. This article explains IV chelation therapy for heavy metal detoxification, including lead. It covers what IV chelation is, which agents are used (EDTA, DMPS), what conditions it is indicated for (heavy metal toxicity, cardiovascular disease), what to expect during treatment, and how many sessions may be needed (typically 10-30 for significant metal reduction). IV chelation requires clinic administration by trained medical professionals and is not home-replicable. The article is useful for someone considering IV chelation along with or as the next step after home-based approaches, and helps set realistic expectations about the process. Extract - home-based protocol - follows:

How to maximize chelation results?

Recommended for all chelation treatments. Our supplement protocol:

- *Vitamin C | 3,000 - 12,000 mg daily*
- *Multi-vitamin*
- *N-acetyl-cysteine (NAC) | 600 mg once or twice daily*
- *Whey Protein Powder | 2 tablespoons daily*
- *Fiber (RBF/Psyllium) | 3-7 caps at night with water*
- *Hydrochloric acid (Betaine HCL) with meals*
- *Urine alkalinizing support (potassium bicarbonate or potassium citrate) see*



Shop

- *In between chelation cycles - consider additional minerals and trace elements. Extra magnesium (either glycinate, maleate, or threonate) is generally needed.*
- *Probiotics*
- *Sauna, hot bath, or exercise to speed up detoxification through your body's largest organ - the skin.*

Mito Health. "How to Reduce Heavy Metal Exposure and Support Detoxification Naturally." Mito Health, 2026. <https://mitohealth.com/guide/reducing-heavy-metal-exposure-naturally> [LID 29503]

Yes, this is a practical, consumer-oriented lead and heavy metal detox guide. Published in 2026 by Mito Health (an integrative health platform), this guide provides actionable advice for reducing heavy metal exposure and supporting the body's natural detoxification systems. It covers: identifying and removing exposure sources (water filters, lead paint, contaminated soil, some foods); dietary strategies (increasing fibre, antioxidant-rich foods, garlic, cruciferous vegetables, cilantro); targeted supplements (vitamin C, zinc, NAC, alpha-lipoic acid, chlorella, modified citrus pectin, glutathione); lifestyle measures (exercise, sauna for sweat-based excretion, adequate sleep and hydration); and when to seek professional testing and medical chelation. No primary subjects are studied. This is the most practically comprehensive home-use guide in this bibliography, covering all major accessible lead detox strategies in one place. Fully replicable without medical supervision.

2021 Volcano Art Prize (VAP) Entry. Artist: Lucinda Curran. Title: Supporting Detoxification.

Lead-Safety Message: Our bodies are designed to remove toxicants, such as lead. However, in the

presence of stress, our ability to detoxify reduces. A bit like a seesaw, as stress increases, detoxification decreases. And as stress decreases, detoxification increases. Sound Healing triggers the relaxation response, which therefore supports our natural healing abilities by reducing stress. This can also help our bodies reduce toxic load and may be useful in reducing lead levels. Description of Work: Digital Art URL: <https://volcanoartprize.com/portfolio-item/supporting-detoxification/> [LID 24271]





Prasann Kumar. "Chapter 11 - Role of glutathione in heavy metal detoxification." Science Direct (book chapter), 2026.

<https://www.sciencedirect.com/science/chapter/edited-volume/abs/pii/B9780443365751000066> [LID 29525]

Yes, this is a relevant lead detox chapter. This book chapter comprehensively reviews glutathione's role in heavy metal detoxification, including lead. Glutathione (GSH) is the cell's primary endogenous antioxidant and metal-binding molecule. The chapter covers: glutathione synthesis and the rate-limiting role of cysteine availability; how glutathione forms conjugates with lead and other metals via glutathione-S-transferase enzymes; transport of metal-glutathione conjugates for biliary and urinary excretion; and how lead exposure depletes glutathione stores, increasing toxicity. Strategies for boosting glutathione - N-acetyl cysteine (NAC), liposomal glutathione supplements, sulphur-rich foods (cruciferous vegetables, garlic, onions), and selenium - are all discussed. All supplements and food strategies are home-accessible. This chapter provides strong mechanistic rationale for including NAC, liposomal glutathione, and sulphur-rich foods in a home lead detox protocol.
