

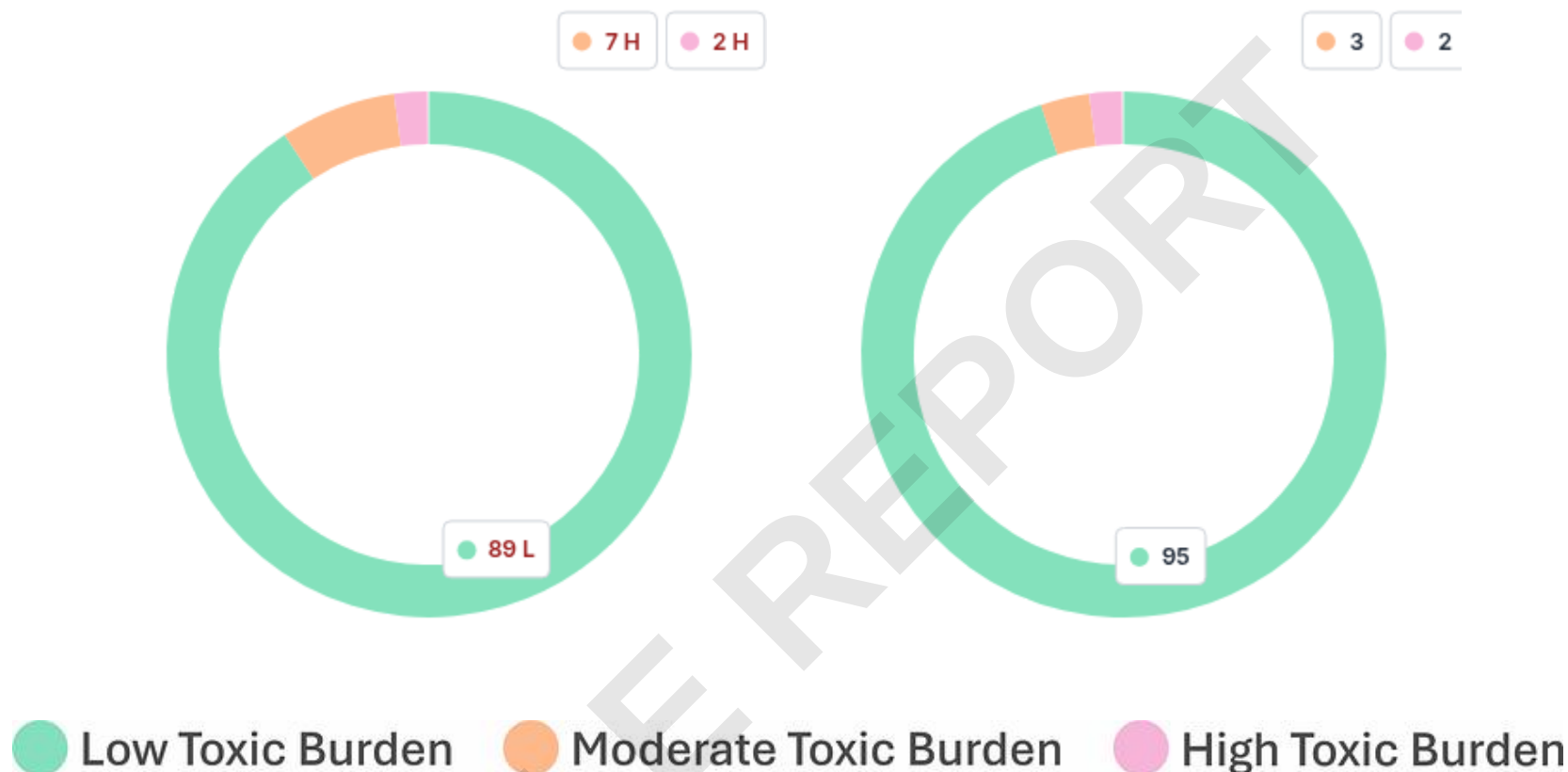
Lab ID
Patient ID PAT-100009
Ext ID 26027-0296

Test Patient

Sex: Male • 46yrs • 01-Jan-80
123 Home Street, Test Suburb Vic 3125

RECEIVED
27-Jan-26

Collected
20-Jan-26



SERVICE	RESULT
Toxic Burden Legend	High

Toxic Burden Comment

Interpretation:

Markedly elevated results suggest significant or chronic toxicant accumulation that may carry clinical relevance. Such elevations warrant investigation of occupational, dietary, or environmental exposures and assessment of detoxification efficiency, mitochondrial status, and organ function. A structured detoxification protocol under clinical supervision is recommended, including source removal, targeted antioxidant and mitochondrial support, and medically guided use of binders or glutathione supplementation. Re-evaluation after intervention is advised to ensure toxin clearance and metabolic recovery.

Mineral Imbalance/Mitochondrial Dysfunction	HIGH Priority	Moderate Priority
Iodine	Mercury Arsenic Glyphosate Aflatoxin Group Ochratoxin A	Lead Bisphenol A (BPA) Perfluorooctanoic Acid (PFOA) Butylparaben Mono-n-Butyl phthalate (mBP)

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Ochratoxin A

TEST	RESULT	H/L	INTERPRETATION	REFERENCE	UNITS
Ochratoxin A	8.390	H	PRESENT	(<1.800)	ppb

Aflatoxin B1, Aflatoxin B2, Aflatoxin G1, Aflatoxin G2

TEST	RESULT	H/L	INTERPRETATION	REFERENCE	UNITS
Aflatoxin Group	0.966	H	EQUIVOCAL	(<0.800)	ppb

Roridin A, Roridin E, Roridin H, Roridin L-2, Verrucarin A, Verrucarin J, Satratoxin G, Satratoxin H, Isosatratoxin F

TEST	RESULT	H/L	INTERPRETATION	REFERENCE	UNITS
Tricothecenes Group	0.014		Not Present	(<0.070)	ppb

Glutathione Derivative

TEST	RESULT	H/L	INTERPRETATION	REFERENCE	UNITS
Glutathione Derivative	0.830	H	EQUIVOCAL	(<0.500)	ppb

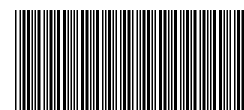
Zearalenone

TEST	RESULT	H/L	INTERPRETATION	REFERENCE	UNITS
Zearalenone	0.360		Not Present	(<0.500)	ppb

Reference Ranges Interpretation

MYCOTOXIN GROUP	Not Present	EQUIVOCAL	PRESENT
Ochratoxin Group	< 1.80 ppb	1.80 - 2.00 ppb	> 2.00 ppb
Aflatoxin Group	< 0.80 ppb	0.80 - 1.00 ppb	> 1.00 ppb
Tricothecenes Group	< 0.04 ppb	0.04 - 0.08 ppb	> 0.08 ppb
Gliotoxins Group	< 0.50 ppb	0.50 - 1.00 ppb	> 1.00 ppb
Zearalenone Group	< 0.50 ppb	0.50 - 0.70 ppb	> 0.70 ppb

Testing performed at Real Time Labs, Carrollton, TX, USA.



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PHYSIOLOGICAL MINERALS

TEST	RESULT	H/L	REFERENCE	UNITS
● Calcium	48.00		(<450.00)	mg/gCR
● Iron	2.9		(<200)	ug/gCR
● Magnesium	32.00		(<290.00)	mg/gCR
● Zinc	110.00		(<900.00)	ug/gCR

TRACE MINERALS

TEST	RESULT	H/L		REFERENCE	UNITS
Boron	854			(<5500)	ug/gCR
Chromium	2.80			(<4.60)	ug/gCR
Cobalt	0.94			(<1.60)	ug/gCR
Copper	69.0	H		(<55.0)	ug/gCR
Germanium	0.30			(<1.50)	ug/gCR
Iodine	88.00	L		(>100.00)	ug/L
Lithium	45.00			(<55.00)	ug/gCR
Manganese	1.09			(<1.50)	ug/gCR
Molybdenum	9.10			(<65.00)	ug/gCR
Nickel	0.81			(<2.00)	ug/gCR
Rubidium	<DL			(<3000)	ug/gCR
Selenium	12.00			(10.00-63.00)	ug/gCR
Strontium	82.00			(<310.00)	ug/gCR
Vanadium	3.88			(<8.00)	ug/gCR

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TOXIC METALS

[illegible]



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Nutrient Mineral Comment

COPPER ELEVATED (URINE):

Elevated urinary copper suggests increased copper excretion, which may occur with higher intake, inflammatory activity, hormonal influences, or altered hepatic copper handling.

Clinically, elevated urinary copper may be associated with fatigue, mood changes, or increased oxidative stress, although findings are non-specific.

From a functional medicine perspective, this result should be interpreted in the context of copper–zinc balance, inflammatory status, oestrogen exposure, and liver function rather than as an isolated indicator of copper excess. Correlation with serum copper and plasma zinc may assist in contextual interpretation where clinically indicated.

VANADIUM (V) LOW: The biological function of vanadium has not fully been substantiated, but there is evidence that it is essential for the growth of some animals. Vanadium may influence lipid metabolism, insulin function, and reduce caries formation in animals. Vanadium is poorly absorbed. **SOURCE:** All plant foods, especially soymeal and vegetable oils.

Toxic Metals Comment

ARSENIC ELEVATED (URINE):

Arsenic exposure may be organic (dietary, e.g. seafood) or inorganic (toxic). Urinary elevation reflects recent exposure and detoxification efficiency.

Clinically, elevated urinary levels may be associated with gastrointestinal upset, fatigue, skin changes, or neuropathic symptoms. Interpretation should consider recent exposure, occupational or environmental sources, renal clearance, and nutritional status.

From a functional medicine perspective, management focuses on differentiating organic vs inorganic sources, improving methylation capacity, ensuring folate and selenium sufficiency, and reducing exposure.

Treatment: Distinguish between organic and inorganic forms; support methylation (folate, B12, SAMe), and use chelation agents like DMSA or NAC if applicable.

LEAD ELEVATED (URINE):

Elevated urinary lead suggests increased lead exposure and/or mobilisation with renal excretion. Urinary lead reflects excretory burden rather than circulating blood lead concentration.

Clinically, elevated lead exposure may be associated with fatigue, cognitive changes, gastrointestinal symptoms, or neurological effects, depending on exposure magnitude and chronicity.

From a functional medicine perspective, this finding should be interpreted in the context of environmental and occupational exposure sources, nutritional factors influencing lead handling (e.g. iron and calcium status), and correlation with blood lead testing where clinically indicated.

Treatment: Chelation therapy (e.g., DMSA, EDTA), zinc and iron repletion, vitamin C and antioxidant support.

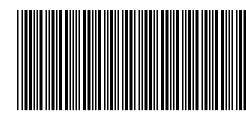
MERCURY ELEVATED (URINE):

Elevated urinary mercury suggests increased mercury exposure and renal excretion. Urinary mercury primarily reflects inorganic or elemental mercury exposure rather than methylmercury from seafood.

Clinically, elevated urinary mercury may be associated with neurocognitive symptoms, tremor, fatigue, or renal effects, depending on exposure magnitude and chronicity.

From a functional medicine perspective, this finding should be interpreted in the context of exposure sources (occupational, dental, environmental), renal function, and antioxidant capacity. Correlation with exposure history and, where clinically indicated, mercury speciation or blood testing may assist contextual interpretation.

Treatment: Eliminate exposure (e.g., amalgam removal by trained providers), use selenium, NAC, ALA, and chelation agents as appropriate.



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SILVER ELEVATED (URINE):

Elevated urinary silver suggests increased exposure and renal excretion, commonly related to supplements (e.g. colloidal silver), occupational contact, or environmental sources.

Clinically, excessive silver exposure may be associated with skin discolouration or non-specific symptoms at higher or sustained levels, though mild elevations are often asymptomatic.

From a functional medicine perspective, this result should be interpreted in the context of supplement use and exposure history, with emphasis on exposure reduction rather than intervention.

Treatment: Identify and eliminate the source of silver exposure; possible treatment with laser therapy.

TIN ELEVATED (URINE):

Tin exposure may be dietary or industrial. Elevated urinary tin reflects exposure and excretion.

Clinically, elevated urinary levels may be associated with gastrointestinal symptoms or fatigue. Interpretation should consider recent exposure, occupational or environmental sources, renal clearance, and nutritional status.

From a functional medicine perspective, management focuses on reducing exposure and supporting renal clearance, prioritising exposure reduction and physiological resilience rather than aggressive intervention.

Treatment: Eliminate exposure, support liver detoxification, and use antioxidants (e.g., vitamin E, selenium).

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[illegible][illegible]

TEST	RESULT	H/L	REFERENCE	UNITS
● 2,4-Dichlorophenoxyacetic acid (2,4-D)	0.06		(<1.00)	ug/gCR

[illegible]

TEST	RESULT	H/L		REFERENCE	UNITS
Aminomethylphosphonic Acid (AMPA)	0.95			(<2.00)	ug/gCR
Glyphosate	55.0	H		(<1.0)	ppb

TEST	RESULT	H/L	REFERENCE	UNITS
● 2-Hydroxyisobutyric Acid	4.66	●	(<6.90)	mmol/molCR

TEST	RESULT	H/L	REFERENCE	UNITS
● Tiglylglycine	3.30	●	(<10.00)	ug/gCR

TEST	RESULT	H/L		REFERENCE	UNITS
● Benzylparaben	4.09	H		(<2.00)	ug/gCR
● Butylparaben	1.67	H		(<1.00)	ug/gCR

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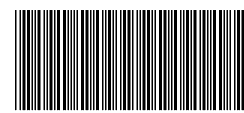
TEST	RESULT	H/L	REFERENCE	UNITS
Ethylparaben	<DL		(<7.00)	ug/gCR
Methylparaben	<DL		(<120.00)	ug/gCR
4-Hydroxybenzoic Acid (4-HBA)	0.00		(<0.57)	mmol/molCR
Propylparaben	<DL		(<35.00)	ug/gCR

TEST	RESULT	H/L		REFERENCE	UNITS
● 3-Phenoxybenzoic Acid (3PBA)	1.55			(<3.00)	ug/gCR
● Diethyl Phosphate (DEP)	9.90	H		(<9.00)	ug/gCR
● Diethyldithiophosphate (DEDTP)	<DL			(<0.20)	ug/gCR
● Diphenyl phosphate (DPP)	<DL			(<2.50)	ug/gCR
● Diethylthiophosphate (DETP)	<DL			(<1.00)	ug/gCR

TEST	RESULT	H/L		REFERENCE	UNITS
Perfluorobutanoic acid (PFBA)	0.43			(<1.20)	ug/gCR
Perfluorooctanoic Acid (PFOA)	0.22	H		(<0.10)	ug/gCR
Perfluorooctane Sulphonic Acid (PFOS)	0.26			(<0.60)	ug/gCR

TEST	RESULT	H/L		REFERENCE	UNITS
Butyl Benzyl phthalate (BBP)	0.50			(<1.00)	ug/gCR
Mono-Benzyl phthalate (mBzP)	0.60			(<3.00)	ug/gCR
Mono-n-Butyl phthalate (mBP)	65.00	H		(<55.00)	ug/gCR
Mono (3-carboxypropyl) phthalate (mCPP)	<DL			(<31.00)	ug/gCR
Mono-ethyl phthalate (MEtP)	125.00	H		(<100.00)	ug/gCR
Mono-2-ethylhexyl phthalate (MEHP)	<DL			(<11.00)	ug/gCR
Mono-(2-ethy-5-hydroxyhexyl) phthalate (MEHHP)	<DL			(<12.00)	ug/gCR
Mono-(2-ethy-5-oxohexyl) phthalate (MEOHP)	<DL			(<27.00)	ug/gCR
Mono-n-octyl phthalate (mOP)	<DL			(<2.00)	ug/gCR
Phthalic Acid	55.00			(<170.00)	ug/gCR
Quinolinic Acid	7.40			(<9.10)	mmol/molCR

TEST	RESULT	H/L	REFERENCE	UNITS
2-hydroxyethyl-mercaptopuric acid (HEMA)	<DL		(<5.00)	ug/gCR
Mandelic Acid	27.0		(<340.0)	ug/gCR
Phenylglyoxylic Acid	58.0		(<300.0)	ug/gCR



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TEST	RESULT	H/L	REFERENCE	UNITS
Mandelic Acid + Phenylglyoxylic Acid	85.0		(<610.0)	ug/gCR

BENZENES EXPOSURE

TEST	RESULT	H/L	REFERENCE	UNITS
t,t-Muconic Acid	0.00		(<0.12)	mmol/molCR
3,4-Dimethylhippuric Acid	0.00		(<0.01)	mmol/molCR

TOLUENES EXPOSURE

TEST	RESULT	H/L	REFERENCE	UNITS
● Benzoic Acid	29.00	H	(<9.30)	mmol/molCR
● Hippuric Acid	330.0		(<603.0)	mmol/molCR

XYLENES EXPOSURE

[illegible]

TEST	RESULT	H/L	REFERENCE	UNITS
Creatinine, Urine	8.00		(2.47- 19.20)	mmol/L



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Environmental Phenols Comment

4-NONYLPHENOL ELEVATED (URINE):

Elevated urinary 4-nonylphenol suggests increased exposure to nonylphenol compounds, which are environmental endocrine-disrupting chemicals commonly derived from the degradation of industrial surfactants and detergents.

Clinically, nonylphenol exposure has been associated with endocrine-disrupting effects in experimental models, though human symptoms are often non-specific and exposure dependent.

From a functional medicine perspective, this finding should be interpreted in the context of cumulative environmental exposure, including household cleaning products and contaminated water sources, with emphasis on reducing ongoing exposure rather than treatment of the metabolite itself.

Treatment considerations: Minimize exposure to industrial and consumer products containing nonylphenol derivatives. Support detoxification pathways with antioxidant-rich nutrition (e.g., sulforaphane, glutathione), liver support, and hydration.

BISPHENOL A (BPA) ELEVATED (URINE):

Elevated urinary bisphenol A (BPA) suggests increased exposure to BPA-containing materials, including food and beverage packaging, thermal receipt paper, and certain plastics. Urinary BPA reflects recent exposure and efficient renal elimination.

Clinically, BPA is recognised as an endocrine-disrupting chemical, and elevated exposure has been associated with hormonal dysregulation, metabolic disturbance, and reproductive effects, although symptom expression varies.

From a functional medicine perspective, this result should be interpreted in the context of dietary packaging exposure, plastic use, and overall endocrine burden, with focus on exposure identification and reduction.

Treatment considerations: Treatment focuses on reducing exposure by avoiding BPA-containing plastics and supporting the body's natural detoxification with antioxidants.

Herbicides Comment

ATRAZINE MERCAPTURATE ELEVATED (URINE)

Elevated urinary atrazine mercapturate reflects confirmed internal exposure to atrazine, with evidence of hepatic phase II detoxification via glutathione conjugation. This metabolite represents the body's biochemical processing of atrazine rather than the presence of the parent compound alone.

The detection of atrazine mercapturate indicates that atrazine has been absorbed and metabolised, typically reflecting recent exposure through drinking water, dietary intake, or environmental contact. While this metabolite itself is less biologically active than atrazine, its presence confirms systemic exposure to an endocrine-disrupting herbicide.

From a functional medicine standpoint, interpretation should consider detoxification capacity, glutathione availability, and co-exposure to other pesticides. Management focuses on reducing ongoing exposure, supporting hepatic biotransformation pathways where appropriate, and addressing cumulative environmental toxicant load rather than treating the metabolite directly.

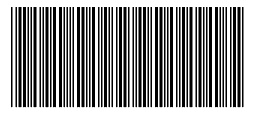
Treatment considerations: Similar to atrazine- emphasize toxin avoidance and hepatic detoxification pathways (Phase I/II liver support), including NAC, glycine, and cruciferous vegetables.

GLYPHOSATE ELEVATED (URINE):

Elevated urinary glyphosate suggests recent exposure and renal excretion of this widely used herbicide. Urinary glyphosate reflects short-term exposure rather than tissue accumulation.

Clinically, glyphosate exposure has been associated with gastrointestinal symptoms, oxidative stress, and potential endocrine or microbiome-related effects, though findings vary with dose and chronicity.

From a functional medicine perspective, this result should be interpreted in the context of dietary patterns, occupational or residential herbicide exposure, and cumulative pesticide burden, with emphasis on minimising ongoing exposure rather than treating the metabolite itself.



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Parabens Comment

Elevated urinary benzylparaben suggests increased exposure to paraben-containing personal care products, cosmetics, or pharmaceutical formulations. Urinary benzylparaben reflects recent exposure and effective renal elimination.

Clinically, parabens are recognised endocrine-disrupting chemicals, and elevated exposure may contribute to hormonal dysregulation, although symptom expression is variable and often subtle.

From a functional medicine perspective, this result should be interpreted in the context of cumulative personal care and cosmetic exposure, with emphasis on reducing ongoing paraben exposure rather than intervention directed at the urinary finding.

Treatment considerations: Minimize exposure to synthetic preservatives. Support detoxification and antioxidant systems. Evaluate total endocrine-disrupting chemical (EDC) burden if multiple parabens are elevated.

Elevated urinary butylparaben suggests increased exposure to paraben-containing products, including cosmetics, toiletries, and some pharmaceutical preparations. Butylparaben is among the more lipophilic parabens and may exhibit greater endocrine activity.

Clinically, elevated butylparaben exposure has been associated with endocrine-related effects in experimental models, though human clinical manifestations are often non-specific.

From a functional medicine perspective, this finding should be interpreted in the context of total paraben burden and endocrine exposure load, with focus on identifying and reducing sources of exposure.

Treatment considerations: Eliminate paraben-containing products. Support liver detoxification pathways and hormone metabolism (e.g., DIM, calcium-D-glucarate, cruciferous vegetables). Monitor hormonal status if symptomatic.

DIETHYL PHOSPHATE (DEP) ELEVATED (URINE):

Elevated urinary diethyl phosphate (DEP) suggests exposure to organophosphate pesticides. DEP is a non-specific dialkyl phosphate metabolite reflecting exposure to multiple organophosphate compounds.

Clinically, organophosphate exposure may be associated with neurological, gastrointestinal, or autonomic symptoms at higher levels, depending on exposure intensity and duration.

From a functional medicine perspective, this finding should be interpreted in the context of dietary, occupational, or residential pesticide exposure, with emphasis on exposure mitigation rather than intervention directed at the metabolite.

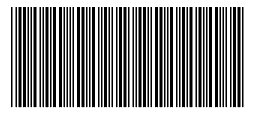
Treatment considerations: Avoid exposure to OP-containing pesticides. Support acetylcholine metabolism and nerve function (e.g., choline, B5, magnesium). Use nutrients that enhance detoxification and methylation (B-vitamins, folate, SAME).

PERFLUOROOCTANOIC ACID (PFOA) ELEVATED:

Elevated PFOA in urine is primarily from exposure and can be linked to potential health effects on the kidneys, hyperuricemia (high uric acid), cancer, endocrine, reproductive.

There is no medically approved treatment to remove PFOA from the body, but exposure can be reduced by avoiding certain foods and products, and some medical interventions may help lower levels.

Phthalates Comment



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Elevated urinary mono-n-butyl phthalate (mBP) suggests exposure to dibutyl phthalate (DBP), commonly found in personal care products, cosmetics, fragrances, and some plastics.

From a functional medicine perspective, this finding should be interpreted in the context of personal care product use and cumulative phthalate exposure, with emphasis on reducing ongoing sources.

Treatment considerations: Avoid DBP-containing products. Use glutathione, selenium, and zinc to support detoxification and hormone metabolism. Consider endocrine evaluation.

Elevated urinary mono-ethyl phthalate (MEtP) suggests exposure to diethyl phthalate (DEP), commonly used in fragrances, cosmetics, and personal care products.

From a functional medicine perspective, this finding highlights fragrance-related exposure and should be interpreted in the context of total phthalate burden.

Treatment considerations: Switch to phthalate-free personal care products. Support liver Phase II detox with amino acids (glycine, glutamine), fiber, and methylation nutrients. Consider endocrine and oxidative stress evaluation.

ENVIRONMENTAL POLLUTANTS PROFILE:

The reported markers in the Environmental Pollutants Profile commonly originate from industrial/manufacturing products or their associated byproducts. Exposures are often occupationally-related and typically through either inhalation or topical exposure.

Metabolism of these products occurs via the liver detoxification pathways leading to excretion into the urine. Chronic exposures may also lead to build up of these products in fatty tissue deposits.

Elevated urinary benzoic acid suggests increased exposure to benzoate-containing foods, preservatives, or altered gut microbial metabolism. Benzoic acid is detoxified primarily through glycine conjugation to form hippuric acid.

Clinically, elevated benzoic acid may be associated with headaches, fatigue, gastrointestinal discomfort, or chemical sensitivity, although symptoms are often non-specific.

From an organic acid pattern perspective, elevated benzoic acid may be observed alongside elevated hippuric acid, indicating increased benzoate load or increased demand on glycine-dependent conjugation pathways.

From a functional medicine perspective, elevated benzoic acid should be interpreted in the context of dietary intake, glycine availability, gut microbial activity, and overall detoxification capacity rather than as an isolated finding.

Treatment: Limiting exposure to toluene. Supportive supplements such as glycine and N-acetyl cysteine can support natural detoxification.

Elevated urinary mono-ethyl phthalate (MEtP) suggests exposure to diethyl phthalate (DEP), commonly used in fragrances, cosmetics, and personal care products.

From a functional medicine perspective, this finding highlights fragrance-related exposure and should be interpreted in the context of total phthalate burden.

Treatment considerations: Switch to phthalate-free personal care products. Support liver Phase II detox with amino acids (glycine, glutamine), fiber, and methylation nutrients. Consider endocrine and oxidative stress evaluation.



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Methodology

Enzyme-Linked Immunosorbent Assay (ELISA), Inductively Coupled Plasma Mass Spectrometry (ICP-MS), Automated Chemistry/Immunochemistry, Liquid Chromatography-Mass Spectrometry (LC-MS/MS/MS)