



SEX: Female  
AGE: 42

12-19

Toxic & Essential Elements; Hair

TOXIC METALS			
	RESULT µg/g	REFERENCE INTERVAL	PERCENTILE 68 <sup>th</sup> 95 <sup>th</sup>
Aluminum (Al)	2.4	< 7.0	
Antimony (Sb)	0.014	< 0.050	
Arsenic (As)	0.011	< 0.060	
Barium (Ba)	2.4	< 2.0	
Beryllium (Be)	< 0.01	< 0.020	
Bismuth (Bi)	0.021	< 2.0	
Cadmium (Cd)	0.013	< 0.050	
Lead (Pb)	0.24	< 0.60	
Mercury (Hg)	0.64	< 0.80	
Platinum (Pt)	< 0.003	< 0.005	
Thallium (Tl)	< 0.001	< 0.002	
Thorium (Th)	< 0.001	< 0.002	
Uranium (U)	0.005	< 0.060	
Nickel (Ni)	0.17	< 0.30	
Silver (Ag)	0.08	< 0.15	
Tin (Sn)	0.35	< 0.30	
Titanium (Ti)	0.40	< 0.70	
Total Toxic Representation			

ESSENTIAL AND OTHER ELEMENTS			
	RESULT µg/g	REFERENCE INTERVAL	PERCENTILE 2.5 <sup>th</sup> 16 <sup>th</sup> 50 <sup>th</sup> 84 <sup>th</sup> 97.5 <sup>th</sup>
Calcium (Ca)	772	300- 1200	
Magnesium (Mg)	900	35- 120	
Sodium (Na)	260	20- 250	
Potassium (K)	53	8- 75	
Copper (Cu)	39	11- 37	
Zinc (Zn)	210	140- 220	
Manganese (Mn)	1.8	0.08- 0.60	
Chromium (Cr)	0.34	0.40- 0.65	
Vanadium (V)	0.022	0.018- 0.065	
Molybdenum (Mo)	0.029	0.020- 0.050	
Boron (B)	0.72	0.25- 1.5	
Iodine (I)	3.6	0.25- 1.8	
Lithium (Li)	0.055	0.007- 0.020	
Phosphorus (P)	181	150- 220	
Selenium (Se)	0.84	0.55- 1.1	
Strontium (Sr)	2.2	0.50- 7.6	
Sulfur (S)	45700	44000- 50000	
Cobalt (Co)	0.030	0.005- 0.040	
Iron (Fe)	8.8	7.0- 16	
Germanium (Ge)	0.029	0.030- 0.040	
Rubidium (Rb)	0.057	0.007- 0.096	
Zirconium (Zr)	0.067	0.020- 0.42	

SPECIMEN DATA		RATIOS	
COMMENTS:		ELEMENTS	RATIOS
Date Collected: 12/28/2015		Ca/Mg	0.858
Date Received: 01/09/2016		Ca/P	4.27
Date Completed: 01/12/2016		Na/K	4.91
Methodology: ICP/MS		Zn/Cu	5.38
Sample Size: 0.205 g	Sample Type: Head	Zn/Cd	> 999
Hair Color: Brown	Treatment:		
Shampoo: Herbal Essence			
		RANGE	
		4- 30	
		1- 12	
		0.5- 10	
		4- 20	
		> 800	



SEX: Female  
DOB: 10/05/1973

AGE: 42

### Toxic & Essential Elements; Whole Blood

ESSENTIAL AND OTHER ELEMENTS							
	RESULT / UNIT	REFERENCE INTERVAL	PERCENTILE				
			2.5 <sup>th</sup>	16 <sup>th</sup>	50 <sup>th</sup>	84 <sup>th</sup>	97.5 <sup>th</sup>
Calcium (Ca)	5.4 mg/dL	4.8 - 7.1					
Magnesium (Mg)	3.7 mg/dL	3 - 4.2					
Copper (Cu)	87 µg/dL	65 - 130					
Zinc (Zn)	622 µg/dL	480 - 780					
Manganese (Mn)	11 µg/L	4 - 22					
Lithium (Li)	33 µg/L	0.4 - 20					
Selenium (Se)	189 µg/L	140 - 350					
Strontium (Sr)	31 µg/L	10 - 45					
Molybdenum (Mo)	3.7 µg/L	0.5 - 2.5					

TOXIC METALS					
	RESULT / UNIT	REFERENCE INTERVAL	PERCENTILE		
			95 <sup>th</sup>	99 <sup>th</sup>	
Arsenic (As)	18 µg/L	< 9.0			
Barium (Ba)	3.1 µg/L	< 4.0			
Cadmium (Cd)	0.3 µg/L	< 1.0			
Cobalt (Co)	0.4 µg/L	< 0.8			
Lead (Pb)	1.0 µg/dL	< 3.0			
Mercury (Hg)	7.6 µg/L	< 4.5			
Nickel (Ni)	< 1 µg/L	< 2			
Platinum (Pt)	< 0.05 µg/L	< 0.10			
Thallium (Tl)	0.06 µg/L	< 0.50			
Tungsten (W)	< 0.03 µg/L	< 0.10			
Uranium (U)	< 0.02 µg/L	< 0.10			

### SPECIMEN DATA

Comments: Results checked.

Date Collected: 02/01/2016

Time Collected: 05:00 PM

Methodology: ICP-MS

Date Received: 02/03/2016

Fasting:

Date Completed: 02/08/2016

Blood lead levels in the range of 5-9 µg/dL have been associated with adverse health effects in children aged 6 years and younger.



AGE: 42

*Essential Elements; Serum*

ESSENTIAL ELEMENTS								
		RESULT/UNIT	REFERENCE INTERVAL	-2SD	-1SD	MEAN	+1SD	+2SD
Calcium	(Ca)	<b>8.9</b> mg/dL	8.9- 10.3					
Magnesium	(Mg)	<b>2.3</b> mg/dL	1.7- 2.5					
Sodium	(Na)	<b>140</b> mEq/L	135- 145					
Potassium	(K)	<b>4.6</b> mEq/L	3.5- 5.0					
Phosphorus	(P)	<b>3.6</b> mg/dL	2.5- 4.5					
Iron	(Fe)	<b>42</b> µg/dL	60- 185					

**INFORMATION**

**Sodium and Potassium**

Sodium (Na<sup>+</sup>) and potassium (K<sup>+</sup>) are electrolytes that affect most metabolic functions. They serve to maintain osmotic pressure and hydration of various body fluid compartments, body pH and regulation of heart and muscle functions. Electrolytes are also involved in oxidation-reduction reactions and participate in essential enzymatic reactions. Electrolytes can be affected by state of hydration. Hemolysis can result in falsely elevated K<sup>+</sup>.

**Magnesium**

Magnesium (Mg) is a major intracellular cation that is involved in over three hundred enzymatic reactions in the body. Little is known about the factors affecting serum Mg, but the parathyroid gland appears to be involved. Low serum Mg levels may be associated with poor diet/malabsorption, diabetes, hyperthyroidism, hypoparathyroidism, myocardial infarction, congestive heart failure, liver cirrhosis, alcoholism and diuresis. Increased serum Mg levels may be associated with renal failure, dehydration, severe diabetic acidosis, and Addison's disease.

**Calcium**

Although 99% of calcium exists in bones and teeth, serum calcium (Ca) is of greatest clinical concern. Ca regulates transmission of nerve impulses, muscle contraction, coagulation, and numerous enzymatic reactions. The uptake and release of Ca from bone is regulated by parathyroid hormone, and serum Ca levels are inversely proportional to phosphorus levels. Low serum Ca results in muscle tetany while high Ca levels result in lowered neuromuscular excitability, muscle weakness, and other more complex symptoms. Marked variations in serum Ca may result from parathyroid gland or bone disease, poor diet/intestinal absorption of calcium (vitamin D), kidney disease, and other abnormalities.

**Inorganic Phosphorus**

Measurements of serum inorganic phosphorus (phosphate or PO<sub>4</sub>) are used in the diagnosis and treatment of disorders including parathyroid gland and kidney diseases, and vitamin D status. Serum PO<sub>4</sub> is regulated by coordinated efforts of vitamin D and parathyroid hormone, and PO<sub>4</sub> levels are inversely proportional to Ca levels. Low PO<sub>4</sub> may be associated with fatigue, paresthesias and muscle weakness, while elevated PO<sub>4</sub> may be associated with hypoparathyroidism, hyperthyroidism, hypocalcemia and tetany.

**Iron**

Measurements of non-heme, serum iron (Fe) are used in the diagnosis and treatment of diseases such as Fe deficiency anemia, Fe toxicity and acute or chronic hemochromatosis. The most comprehensive assessment of Fe status includes transferrin saturation and ferritin.

**SPECIMEN DATA**

Comments:

Date Collected: 02/01/2016

Time Collected: 05:00 PM

Methodology: Na, K ISE

Date Received: 02/03/2016

Fasting:

Ca, Mg, P, Fe Spectrophotometry

Date Completed: 02/05/2016

v08.10



SEX: Female  
AGE: 43

## Toxic & Essential Elements; Hair

TOXIC METALS				
		RESULT µg/g	REFERENCE INTERVAL	PERCENTILE 68 <sup>th</sup> 95 <sup>th</sup>
Aluminum (Al)		1.2	< 7.0	
Antimony (Sb)		0.012	< 0.050	
Arsenic (As)		0.026	< 0.060	
Barium (Ba)		0.26	< 2.0	
Beryllium (Be)		< 0.01	< 0.020	
Bismuth (Bi)		0.23	< 2.0	
Cadmium (Cd)		< 0.009	< 0.050	
Lead (Pb)		0.14	< 0.60	
Mercury (Hg)		0.69	< 0.80	
Platinum (Pt)		0.004	< 0.005	
Thallium (Tl)		< 0.001	< 0.002	
Thorium (Th)		< 0.001	< 0.002	
Uranium (U)		0.001	< 0.060	
Nickel (Ni)		0.03	< 0.30	
Silver (Ag)		0.05	< 0.15	
Tin (Sn)		0.06	< 0.30	
Titanium (Ti)		0.36	< 0.70	
Total Toxic Representation				

ESSENTIAL AND OTHER ELEMENTS					
		RESULT µg/g	REFERENCE INTERVAL	PERCENTILE 2.5 <sup>th</sup> 16 <sup>th</sup> 50 <sup>th</sup> 84 <sup>th</sup> 97.5 <sup>th</sup>	
Calcium (Ca)		140	300- 1200		
Magnesium (Mg)		39	35- 120		
Sodium (Na)		10	20- 250		
Potassium (K)		8	8- 75		
Copper (Cu)		16	11- 37		
Zinc (Zn)		160	140- 220		
Manganese (Mn)		0.19	0.08- 0.60		
Chromium (Cr)		0.38	0.40- 0.65		
Vanadium (V)		0.024	0.018- 0.065		
Molybdenum (Mo)		0.061	0.020- 0.050		
Boron (B)		0.47	0.25- 1.5		
Iodine (I)		0.99	0.25- 1.8		
Lithium (Li)		0.17	0.007- 0.020		
Phosphorus (P)		166	150- 220		
Selenium (Se)		0.74	0.55- 1.1		
Strontium (Sr)		0.19	0.50- 7.6		
Sulfur (S)		46600	44000- 50000		
Cobalt (Co)		0.002	0.005- 0.040		
Iron (Fe)		6.0	7.0- 16		
Germanium (Ge)		0.031	0.030- 0.040		
Rubidium (Rb)		0.011	0.007- 0.096		
Zirconium (Zr)		0.033	0.020- 0.42		

SPECIMEN DATA		RATIOS	
<b>COMMENTS:</b>		<b>ELEMENTS</b>	<b>RATIOS</b>
Date Collected: 10/05/2016		Ca/Mg	3.59
Date Received: 11/05/2016		Ca/P	0.843
Date Completed: 11/09/2016		Na/K	1.25
Methodology: ICP/MS		Zn/Cu	10
Sample Size: 0.205 g	Sample Type: Head	Zn/Cd	> 999
Hair Color: Brown	Treatment:		
Shampoo: Garnier Fructis			
		<b>RANGE</b>	
		4- 30	
		1- 12	
		0.5- 10	
		4- 20	
		> 800	

**Toxic & Essential Elements; Hair**

TOXIC METALS				
		RESULT µg/g	REFERENCE INTERVAL	PERCENTILE 68 <sup>th</sup> 95 <sup>th</sup>
Aluminum (Al)	1.6	< 7.0		
Antimony (Sb)	0.016	< 0.050		
Arsenic (As)	0.018	< 0.060		
Barium (Ba)	1.1	< 2.0		
Beryllium (Be)	< 0.01	< 0.020		
Bismuth (Bi)	0.011	< 2.0		
Cadmium (Cd)	< 0.009	< 0.050		
Lead (Pb)	0.53	< 0.60		
Mercury (Hg)	0.21	< 0.80		
Platinum (Pt)	< 0.003	< 0.005		
Thallium (Tl)	< 0.001	< 0.002		
Thorium (Th)	< 0.001	< 0.002		
Uranium (U)	0.009	< 0.060		
Nickel (Ni)	0.07	< 0.30		
Silver (Ag)	0.88	< 0.15		
Tin (Sn)	0.11	< 0.30		
Titanium (Ti)	0.18	< 0.70		
<b>Total Toxic Representation</b>				

ESSENTIAL AND OTHER ELEMENTS			
	RESULT µg/g	REFERENCE INTERVAL	PERCENTILE 2.5 <sup>th</sup> 16 <sup>th</sup> 50 <sup>th</sup> 84 <sup>th</sup> 97.5 <sup>th</sup>
Calcium (Ca)	364	300- 1200	
Magnesium (Mg)	48	35- 120	
Sodium (Na)	60	20- 250	
Potassium (K)	18	8- 75	
Copper (Cu)	56	11- 37	
Zinc (Zn)	160	140- 220	
Manganese (Mn)	0.62	0.08- 0.60	
Chromium (Cr)	0.33	0.40- 0.65	
Vanadium (V)	0.012	0.018- 0.065	
Molybdenum (Mo)	0.047	0.020- 0.050	
Boron (B)	0.63	0.25- 1.5	
Iodine (I)	1.2	0.25- 1.8	
Lithium (Li)	< 0.004	0.007- 0.020	
Phosphorus (P)	171	150- 220	
Selenium (Se)	1.1	0.55- 1.1	
Strontium (Sr)	0.68	0.50- 7.6	
Sulfur (S)	46900	44000- 50000	
Cobalt (Co)	0.003	0.005- 0.040	
Iron (Fe)	5.5	7.0- 16	
Germanium (Ge)	0.033	0.030- 0.040	
Rubidium (Rb)	0.025	0.007- 0.096	
Zirconium (Zr)	0.025	0.020- 0.42	

SPECIMEN DATA		RATIOS		
<b>COMMENTS:</b>		ELEMENTS	RATIOS	RANGE
Date Collected: 04/17/2019	Sample Size: 0.198 g	Ca/Mg	7.58	4- 30
Date Received: 04/26/2019	Sample Type: Head	Ca/P	2.13	1- 12
Date Completed: 04/30/2019	Hair Color: Red	Na/K	3.33	0.5- 10
Methodology: ICP/MS	Treatment:	Zn/Cu	2.86	4- 20
	Shampoo: Shea Moisture	Zn/Cd	> 999	> 800

**What are your current symptoms and health history?**

Parkinson's disease diagnosed one year ago.

Stiffness and difficulty moving, tremors in all joints with action, loss of sense of smell, difficulty with balance and walking, extreme constipation, electrical sensitivity and weakness when around computers (developed after DMPS Challenge), rage and sobbing, general grumpiness, muscle weakness and cramps, menstrual irregularities, problems with memory and word finding, confusion, suicidal thoughts, pain and discomfort in shoulders, back and neck, blepharospasms (uncontrollable blinking and eye squeezing), dizziness, fatigue and malaise, indecision, loss of neck curvature.

History of anxiety and OCD. Epstein-Barr / chronic fatigue syndrome in high school.

**Dental history (Wisdom teeth removed and when? Any other extractions. First root canal placed? Braces? First amalgam etc...)**

Two small white fillings. I've never had Mercury amalgams, root canals, braces or any other dental work.

**What dental work do you currently have in place? What part of the dental clean-up have you completed?**

Two small white fillings. No cleanup required that I know of. Lots of general detox.

**What dentistry did your mother have at any time before or during pregnancy?**

Definitely some Mercury amalgams, But not sure many. Eight maybe?

**What vaccinations have you had and when (including flu and especially travel shots)?**

TDAP, MMR, Polio as a child. Rabies in 1995. Hep A/B, Tetanus, Typhoid, Yellow Fever approximately 15 years ago

**Supplements and medications (including dosages) taken at time of hair test, or for the 3-6 months before the sample was taken?**

Naturethroid, Klonopin, Adrenal/Thymus extracts, DIM Liposome, Electrolyte mix, Intramin multi-mineral, Calm Magnesium, Vitamin D, Vitamin B12, liposomal Glutathione.

Probably others too. This is not an exact list, but it's the best I can re-create for that point in time. No idea about dosages, but safe to say the test was definitely affected by supplementation.

**What is your age, height and weight?**

42, 5'2", 115 pounds

**Other information you feel may be relevant?**

I was in New York for 9/11 and lived and worked within a few blocks of the site and cleanup.

My ex-husband has advanced MS. We lived in a probably moldy house when he first got sick. My first symptoms appeared when I got pregnant 10 years ago. This was our first unprotected sex. Our daughter has OCD and extreme anxiety.

I had a terrible bout of bronchitis two years ago, after which I started feeling like my brain was on fire. I can't remember whether I took an antibiotic, but I believe I did. I had also been dying my hair red for a year at that point.

At the time of my current diagnosis, I had been working in an old, and possibly toxic, building for a year. I was under extreme stress at work.

I am including whole blood work as well, which shows elevated levels of metals. I had my water tested (negative), and could come up with no other sources of current exposure.

Since manganese is considered a Parkinson's imitator, I'm especially concerned as to whether the reading in this hair test for manganese is reliable, and if so what to do about it. Will the regular protocol chelate manganese?

**What is your location – city & country (so that we can learn where certain toxins are more prevalent).**

Brooklyn, New York, USA

## Symptoms update Jan 2017

After 15, five-day rounds chelation

Improved symptoms: Blepharospasms, electrical sensitivity, dizziness, mental impairment, anxiety, brain fog, visual disturbances

Worse symptoms: Muscle weakness and tremor, difficulty walking, constipation, weak voice

New symptoms: flaky rash on face, extreme back pain and joint pain, frozen shoulder, tennis elbow, inflamed rotator cuff, itching

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## **Update 2019**

After 93 round equivalents

Improved: Cognition, executive function, multitasking, stress tolerance, speed, balance, strength, flexibility. Typing and writing.

Worse: Gait disturbance, anxiety, Blepharospasms, joint pain and tendinitis, weak voice

New: scoliosis, swelling ankles, exercise-induced vasculitis, insomnia, daytime sleepiness, urinary urgency and incontinence.