



Understanding the Metal Ratios

These are the Trivalent Toxic Metal Extended Ratios not on the Trace Elements Hair Mineral Analysis test that show your toxicities for Arsenic (As), Aluminum (Al), Tin (Sn), and Thallium (TI). These metals reduce your body's ability to make energy. Your toxicity level for each is in yellow.

ARSENIC (AS)

	Mo / As	Se/As	P / As
Your Ratios	0.250	6.250	1062.500
Normal	> 3	>52.5	> 8000
Mild Toxicity	2.25	39.375	6,000
Moderate Toxicity	1.5	26.25	4,000
Toxic	< 0.75	<13.125	< 2000

ALUMINUM (AL)

	B / Al	Mg/Al	P / Al	Se/Al
Your Ratios	1.660	33.000	34.000	0.200
Normal	> 1.567	>23.33	>53.3	>0.35
Mild Toxicity	1.173	17.5	40	0.2625
Moderate Toxicity	0.782	11.67	26.67	0.175
Toxic	<0.391	< 5.83	<13.33	<0.0875

TIN (SN)

	Se / Sn	Zn / Sn
Your Ratios	10.000	1600.000
Normal	> 14	> 2130
Mild Toxicity	10.5	1,600
Moderate Toxicity	7	1,065
Toxic	< 3.50	< 530

THALLIUM (TI)

	K/TI	Rb/TI
Your Ratios	22,000.00	28.600
Normal	26,000	19
Mild Toxicity	19,500	14.25
Moderate Toxicity	13,000	9.5
Toxic	6,500	4.75

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Understanding the Mineral Ratios

This page explains what the Significant Ratios on page 2 of your Trace Elements hair mineral analysis mean.

Ca/P Metabolic Rate
2.24
<i>Ideal ratio = 2.63</i>

High ratio = > 2.9
 > 8 = Extreme High - Very Slow metabolism
 2.9–8.0 = High = Slow Metabolism
 2.3–2.8 = Good range = Healthy Metabolism
 1.5–2.3 = Low = Fast Metabolism
 <1.5 = Extreme Low = Very Fast Metabolism
 Low ratio = < 2.3

Protein Usage

Phosphorus (P) levels indicate protein usage, protein reserves, & tissue breakdown. When P is high or low ask the following questions:

- Ø Eating enough protein?
 - Ø Good protein sources?
 - Ø Digesting protein (HCL)?
- High P *could be* a pubic hair sample, excessive tissue breakdown, impaired digestion.
 Low P could be protein deficiency, excessive tissue breakdown, impaired digestion, poor source of protein, (low P is worse than high), impaired protein synthesis (worse with low Zn)

MOST IMPORTANT RATIO

Na/K Overall Vitality
2.82
<i>Ideal ratio = 2.40</i>

> 12 = Extreme High
 4.0–12 = High
 2.3–3.9 = Good range
 2.0–2.3 = Low
 1.0–1.9 = Very Low
 <1.0 = Extreme Low – (see below...)
 High ratio = toxins will often elevate Na, acute stress, inflammation, anger

Na is a rough indication of **Aldosterone** release - pro-inflammatory
 K is a rough indication of **Cortisol** release, anti-inflammatory

Low ratio = potentially experiencing one or more of the following: feelings of frustration, decreased awareness of symptoms, adrenal fatigue, chronic stress, lowered energy & energy reserves, decreased immunity, carbohydrate intolerance, poor digestion, allergic tendencies, diabetic tendency, liver & kidney stress, cardiovascular stress, tendency toward degenerative disease, resentment, hostility

Ca/K Thyroid
3.45
<i>Ideal ratio = 4.20</i>

> 50 = Extreme Hypothyroid
 8.1–50 = Moderate Hypothyroid
 3.0–8.0 = Good Range
 1.0–2.9 = Moderate Hyperthyroid
 <1.0 = Extreme Hyperthyroid
 High ratio = Decreased thyroid effect; i.e. Hypothyroid, thyroid hormone has difficulty getting into cell. Nutrients and glucose have a reduced ability to enter cell.
 Low ratio = Increased thyroid effect (at the cellular level) and/or toxicity; i.e. Hyperthyroid.
 High Ca = Body is protecting itself, person may be defensive, lowered cell permeability, calcium shell if >170
 Low Ca (<30) = hypersensitivity, anxiety, nervousness, muscle cramps or twitches, increased cell permeability, unprotected psychologically, Ca deficiency

Zn/Cu Hormones
3.72
<i>Ideal ratio = 8.00</i>

Indicates potential hormone imbalance, cardiovascular stress, tendency toward atherosclerosis, or Zn loss

>15 = Extreme High

10.1–15 = High

6.5–10.0 = Good range

3.0–6.4 = Low

<3.0 = Extreme Low

High ratio = can mean hidden copper toxicity.

Slow oxidizers with a "Low Cu" usually have Low Bioavailable Copper and Excess, Unbound Copper (toxicity) which is quite toxic to the body...

Fast oxidizers usually have true low Cu and Zinc

Zn levels roughly correlates with Progesterone effect in women, testosterone effect in men.

Cu levels roughly correlates with Estrogen effect in both sexes.

Na/Mg Adrenal
1.88
<i>Ideal ratio = 4.00</i>

> 20 = Extreme High

6.1–20 = High

3.0–6.0 = Good ratio

1.0–2.9 = Moderate Adrenal Fatigue

<1.0 = Extreme Adrenal Fatigue

High ratio = toxins increase Na, excessive adrenal output, acute stress, tendency for Mg deficiency

Low ratio = decreased adrenal effect, chronic stress, exhaustion

Excess Calcium and/or stress set the stage for adrenal fatigue that causes

a loss of Sodium and Potassium at the cellular level. It is akin to "air being let out of a tire"

to balance the HIGH Calcium with the often LOW Magnesium found in Adrenal Fatigue...

Ca/Mg Blood Sugar
2.30
<i>Ideal ratio = 7.00</i>

> 18 = Extreme High

13.1–18.0 = High

> 13 = May be overeating carbs, emotional defensiveness/conflict, addictive lifestyle not in client's best interest, spiritual conflict

10.0–13.0 = Overeating carbs, tendency towards *Insulin Resistance, Relative Mg Deficiency*

3.4–9.9 = Good Range - sign of good cardiovascular health

< 3.3 = Magnesium loss, may have blood sugar issues

2.5–3.3 = Moderate Mg Loss

< 2.5 = Extreme Mg Loss

Fe/Cu Infections
0.19
<i>Ideal ratio = .9</i>

This ratio shows signs of potential infections in the body, but is not a confirmation of infection until further testing is done.

> 2 = High Tendency for Viral Infections

1.2–2 = Moderate tendency for Viral Infections

.5–1.2 = Good ratio

.1–.5 = Moderate Tendency for Bacterial Infections

<.1 = Extreme Tendency for Bacterial Infections

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Copper Toxicity Profile

This shows your tendency for Copper Toxicity/Dysregulation based on your Hair Mineral Analysis.

Note, the hair mineral analysis is not 100% reliable in showing copper toxicity. Some that seem copper toxic on the HTMA are in fact NOT copper toxic once a Urine Metals Push/Challenge test is performed.

If you are copper toxic on the HTMA, the Urine Metals test is advised for confirmation.

→	Calcium	> 50	38.00	
	Sodium	< 12	31.00	
→	Potassium	< 4	11.00	
→	Copper	> 2.5	4.30	
		< 1.5	4.30	
	Zinc	< 12	16.00	
		> 20	16.00	
	Phosphorus	< 12	17.00	
	Ca/K ratio	> 10.1	3.45	
→	Na/K ratio	< 2.1	2.82	
	Zn/Cu ratio	> 12:1	3.72	
		< 6:1	3.72	
→	Mercury (Hg) Level	> .02	0.07	
	Cu/Mo Ratio	> 850	1075.00	

Definitive Markers for Copper Toxicity		
Ø Ca > 50		You have 3 of 6 Indicators of Copper Toxicity
Ø K < 4		
Ø Cu < 1.50 or > 2.50		
Ø Na/K ratio < 2.1		
Ø Hg > .02		
Ø Cu/Mo > 850		

<i>Minerals and Metals</i>		
<i>Element</i>	<i>Your Level</i>	<i>Ideal</i>
<i>Ca</i>	<i>38.0</i>	<i>60</i>
<i>Mg</i>	<i>16.5</i>	<i>6</i>
<i>Na</i>	<i>31.0</i>	<i>20</i>
<i>K</i>	<i>11.0</i>	<i>13</i>
<i>Cu</i>	<i>4.3</i>	<i>2.4</i>
<i>Zn</i>	<i>16.0</i>	<i>16</i>
<i>P</i>	<i>17.0</i>	<i>16</i>
<i>Fe</i>	<i>0.8</i>	<i>1.1</i>
<i>Mn</i>	<i>0.01</i>	<i>0.07</i>
<i>Cr</i>	<i>0.04</i>	<i>0.05</i>
<i>Se</i>	<i>0.10</i>	<i>0.12</i>
<i>B</i>	<i>0.83</i>	<i>0.45</i>
<i>Mo</i>	<i>0.004</i>	<i>0.005</i>
<i>U</i>	<i>0.0064</i>	<i>0.0001</i>
<i>As</i>	<i>0.016</i>	<i>0.002</i>
<i>Be</i>	<i>0.001</i>	<i>0.001</i>
<i>Hg</i>	<i>0.07</i>	<i>0.02</i>
<i>Cd</i>	<i>0.00</i>	<i>0.01</i>
<i>Pb</i>	<i>0.10</i>	<i>0.10</i>
<i>Al</i>	<i>0.50</i>	<i>0.30</i>
<i>Sn</i>	<i>0.01</i>	<i>0.01</i>
<i>Tl</i>	<i>0.00</i>	<i>0.01</i>
<i>Rb</i>	<i>0.01</i>	<i>0.02</i>