

BIO-CHEMICAL INDIVIDUALITY & HIDDEN HUNGER:

The Role of HTMA in Uncovering Nutrient Imbalances





HELLO!

Susan Szczesny

Naturopath,
HTMA Expert - Platinum Accredited Practitioner

1.

A Bioindividual Approach

Understanding how to
use HTMA

PERSONALISED HEALTH

Personalised health can transform patients' lives by delivering care tailored to the individual, thereby helping to prevent, diagnose and treat patients faster and more effectively.



UTILISING A BIO-INDIVIDUAL APPROACH

We are often asked:

- How does this work?
- How do you utilise HTMA?
- Where would I use HTMA?
- Just use in new cases?
- How can I start?



2. Typical Conditions

SOME TYPICAL CONDITIONS

Start with simple scenario,
where all is not what it seems:

- Cramps
- Osteoporosis
- Anaemia



Starting with something simple!

Cramping in bed at night.
General teaching is Mg
Can I be sure?
How do I know there is Mg deficiency?
Is there an imbalance that giving Mg would solve?



First thought: Mg

Patient with Leg Cramps (Night)

- High Mg
- Low Ca/Mg Ratio
- Low Na/Mg Ratio
- Mg could affect K



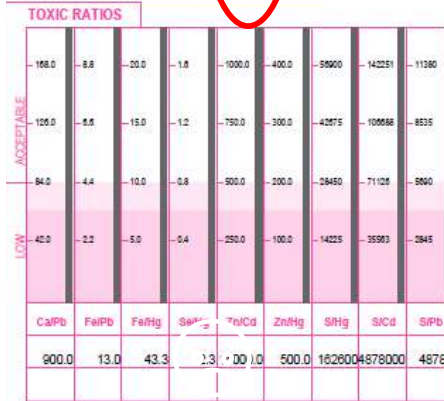
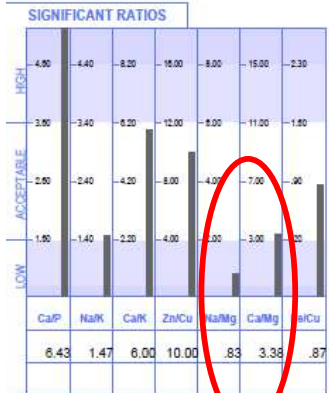
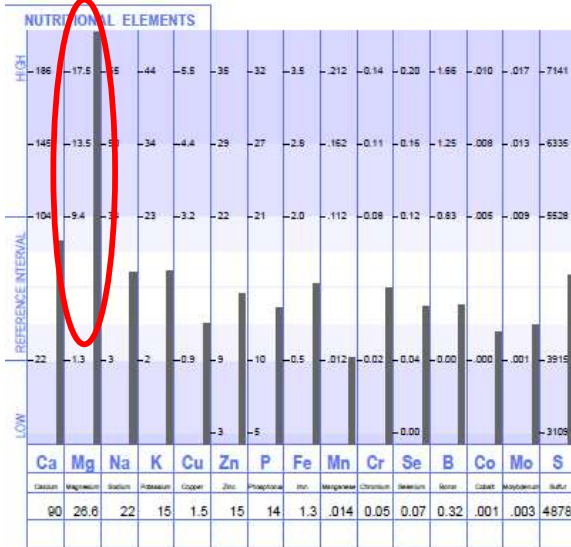
No to Magnesium Supplement



Yes to Calcium Supplement

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 PO Box 6474, Alexandria NSW 2015 Australia
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 Email: lab@Interclinical.com.au

LABORATORY NO.:			
PROFILE NO.:	2	SAMPLE TYPE:	SCALP
PATIENT:	AGE: 39	SEX: F	METABOLIC TYPE: SLOW 1
REQUESTED BY: INTERCLINICAL	ACCOUNT NO.: 2216	DATE:	



*** Below Calibration Limit; Value Given to Calibration Limit
 ND: Sample Size Was Inadequate For Analysis.
 NA: Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Parietal To The Occipital Region Of The Scalp.
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14/03/2022
 CURRENT TEST RESULTS

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RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	173.08		263/1
Cr/V	10.00		8/1
Cu/Mo	500.00		356/1
Fe/Co	1300.00		615/1
K/Co	15000.00		6350/1
Mg/B	83.13		21/1
Si/Cu	3252.00		2668/1
Se/Ti	700.00		370/1
Se/Sn	1.75		3.2/1
Zn/Sn	375.00		624/1

OSTEOPOROSIS

1 in 5 Australians aged 75 and over reported osteoporosis or osteopenia (low bone density) in 2017–18

<https://www.aihw.gov.au/reports-data/health-conditions-disability-deaths/chronic-musculoskeletal-conditions/overview>

High fracture rates: 2012-2022

- In 2013 there is 1 fracture every 3.6 minutes in Australia. This equates to 395 fractures per day or 2,765 fractures per week
- By end 2022 there will be 1 fracture every 2.9 minutes. That is **501 fractures per day** and 3,521 fracture per week



The regular go to: Ca & Vitamin D

Example 1 – Diagnosed with Osteoporosis

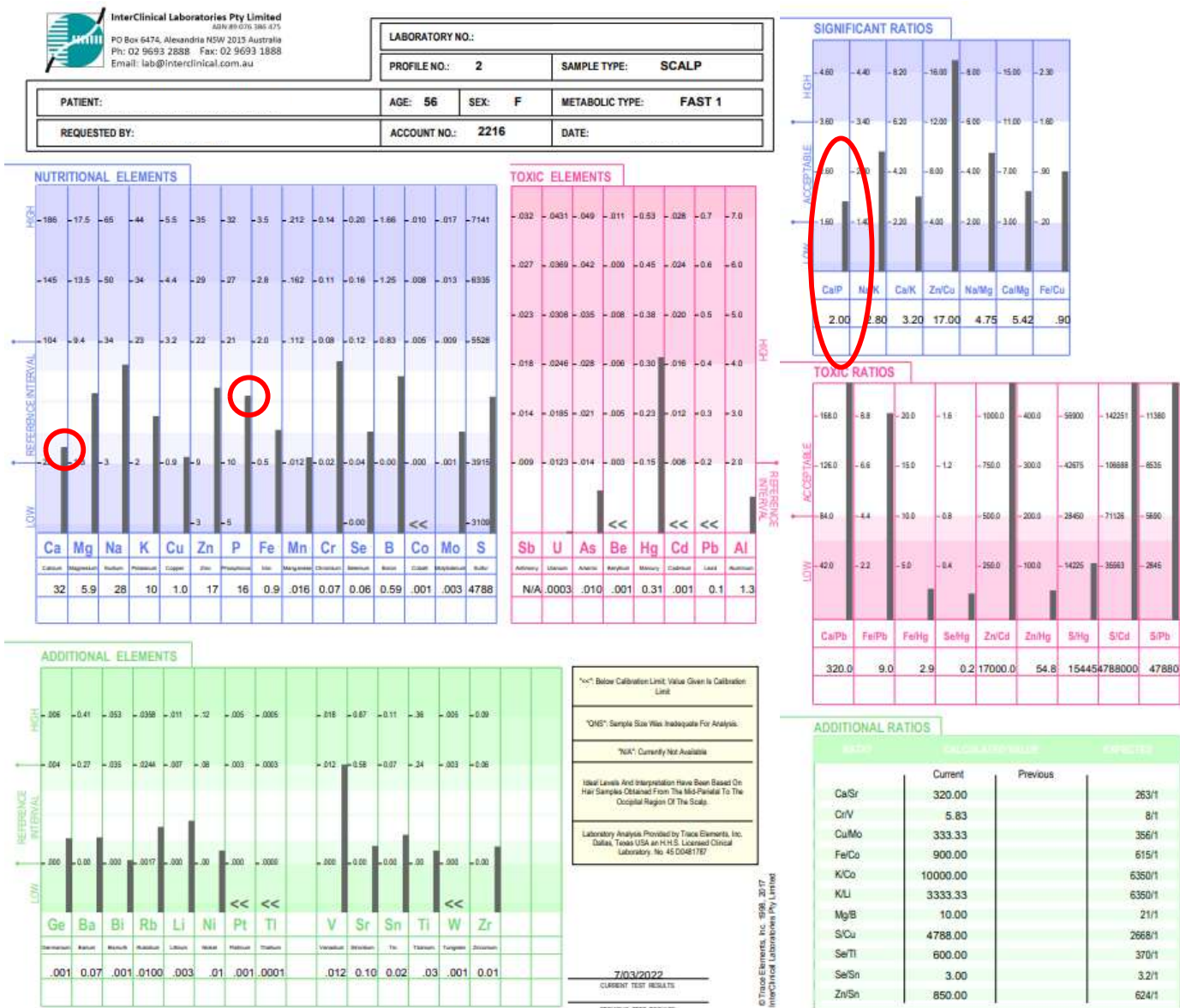
- Low Calcium
- Low Ca/P Ratio
- Low Ca/K Ratio
- Low Ca/Mg Ratio



Yes to Calcium Supplement

Possible synergists as recommended by the specific report: Vitamin D, Vitamin K, Copper, Selenium

Remember: We are talking tissue Ca not serum Ca. They may or may not appear in tandem.



Example 2 – Diagnosed with Osteoporosis

- Good Ca Level
- High Ca/P Ratio
- High Ca/K Ratio
- Good Ca/Mg Ratio



No to elemental Calcium & Vit D Supplement

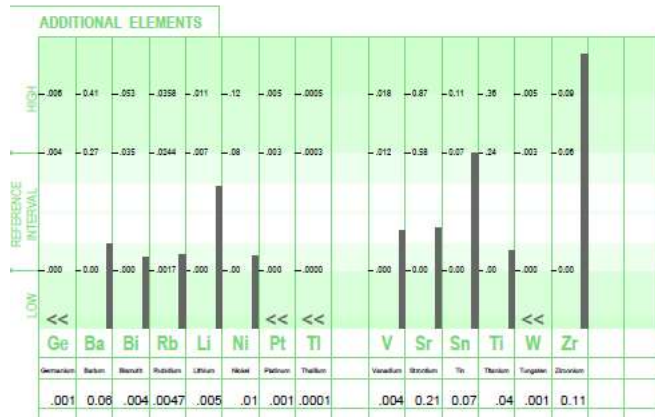
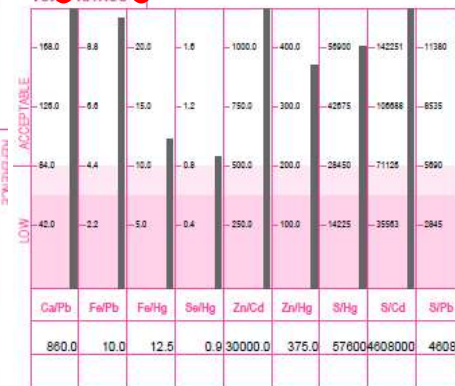
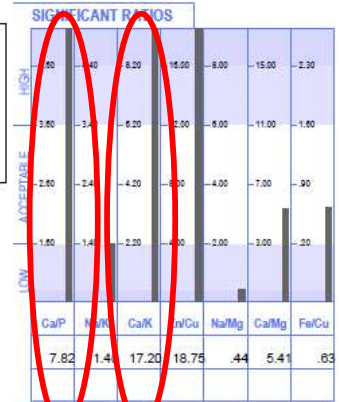
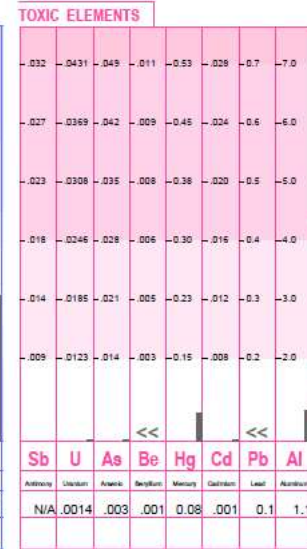
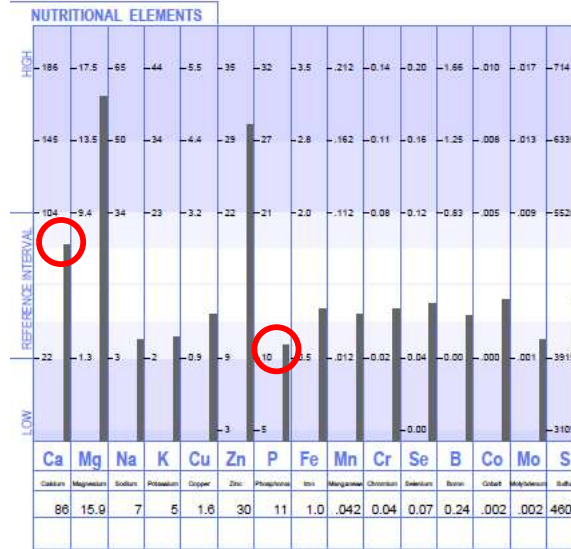


Yes to Phosphorous, B6 & HCl stimulant

Remember: Phosphorous deficiency may be a cause of brittle bones.

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LABORATORY NO.: 99999999	
PROFILE NO.: 2	SAMPLE TYPE: SCALP
PATIENT:	AGE: 58 SEX: F METABOLIC TYPE: SLOW 1
REQUESTED BY:	ACCOUNT NO.: 2216 DATE: 01/05/2022



*C: Below Calibration Limit; Value Given Is Calibration Limit
 *ONS: Sample Size Was Inadequate For Analysis.
 *NA: Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Panicle To The Occipital Region Of The Scalp.
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17/05/2022
 CURRENT TEST RESULTS

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RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	409.52		263/1
Cr/V	10.00		8/1
Cu/Mo	800.00		356/1
Fe/Co	500.00		615/1
K/Co	2500.00		6350/1
K/Li	1000.00		6350/1
Mg/B	66.25		21/1
Si/Cu	2880.00		2668/1
Se/Ti	700.00		370/1
Se/Sn	1.00		3.2/1
Zn/Sn	428.57		624/1

OSTEOPOROSIS TYPE 2

Slow Metabolic type characterized by overworking parathyroid

Increase Ca absorption & retention with

Decreased P absorption & retention

- If you give Ca – it's not absorbed by the bones, often deposited in soft tissue and causes stiff joints, hardened arteries, gall stones, wrinkling of skin etc
- Ca bone loss can be due to parathyroid issue, diabetes ...

Remember: Look at Metabolic Type in HTMA chart for overactive thyroid coupled with increased adrenal activity.

Root cause of Osteoporosis?



ANAEMIA

Estimates suggest that one-quarter of the world's population has anaemia. The burden of anaemia is considerably higher among indigenous populations compared to the general population (Khambalia et al 2011).

The regular go to: Iron Supplementation



Example 1 – Diagnosed with Anaemia

- Low Iron
- Low Fe/Cu Ratio
- Low Fe/Co Ratio



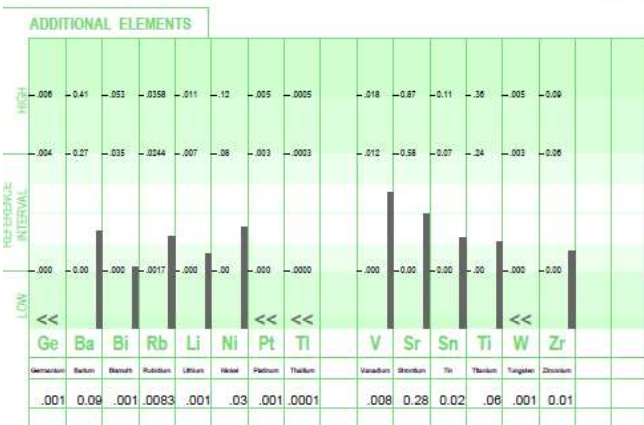
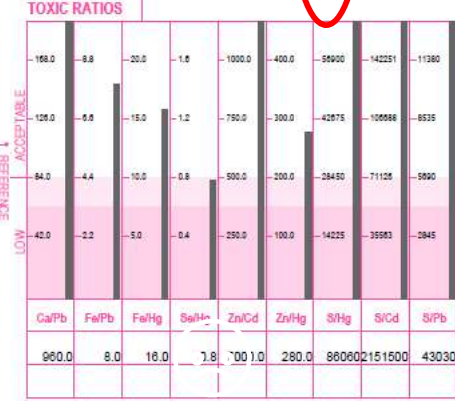
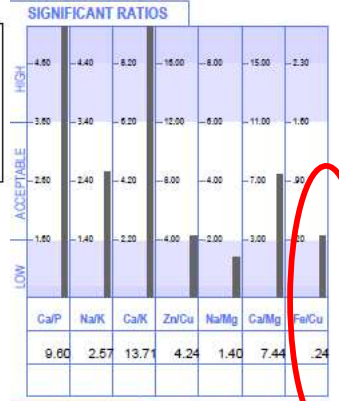
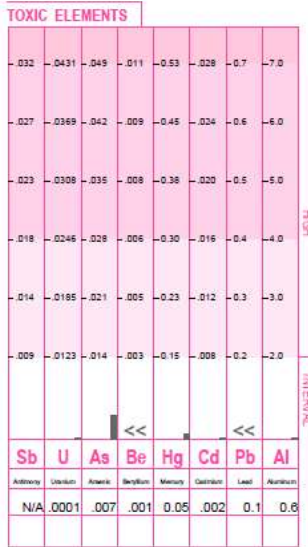
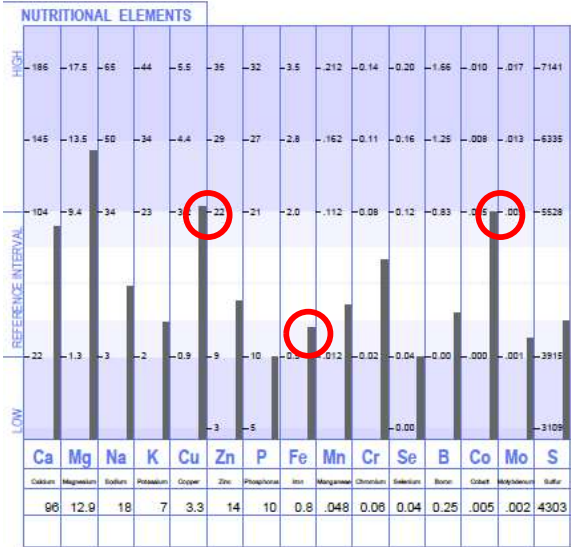
Yes to Iron Supplement

Possible synergists as recommended by the specific report: Vitamin C, Manganese, Potassium

Remember: To look at Heavy Metals eg, Pb, Hg, Cd & Sn as they along with B12 (Cobalt) & Vit D may be Fe antagonists

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LABORATORY NO.: 999999	
PROFILE NO.: 2	SAMPLE TYPE: SCALP
PATIENT:	AGE: 44 SEX: F METABOLIC TYPE: SLOW 1
REQUESTED BY: INTERCLINICAL	ACCOUNT NO.: 2216 DATE: 01/05/2022



Below Calibration Limit, Value Given is Calibration Limit
 ONS Sample Size Was Inadequate For Analysis
 N/A Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Palette To The Occipital Region Of The Scalp.
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1/05/2022
 CURRENT TEST RESULTS

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ADDITIONAL RATIOS

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	342.86		263/1
Cu/V	7.50		8/1
Cu/Mg	1650.00		356/1
Fe/Co	160.00		615/1
K/Cu	1400.00		6350/1
K/Li	7000.00		6350/1
Mg/B	51.80		21/1
S/Cu	1303.94		2668/1
Se/Tl	400.00		370/1
Se/Sn	2.00		3.2/1
Zn/Sn	700.00		624/1

Example 2 – Diagnosed with Anemia

- Okay Fe Level
- Low Cu level
- Climbing Fe/Cu Ratio
- High Sn

Remember: Tin is blocking the iron utilisation, Se & Vit E will assist antagonising Sn... Vit C will support Iron utilisation.



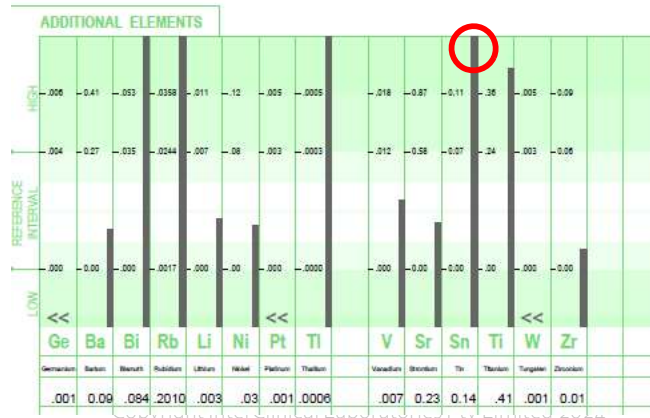
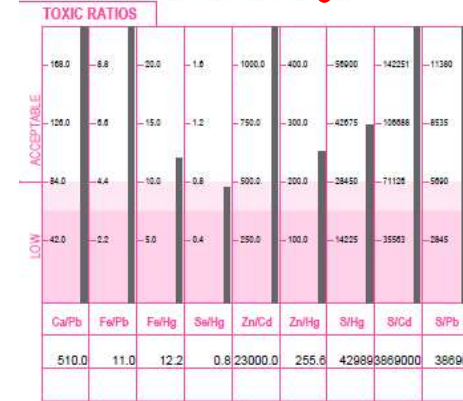
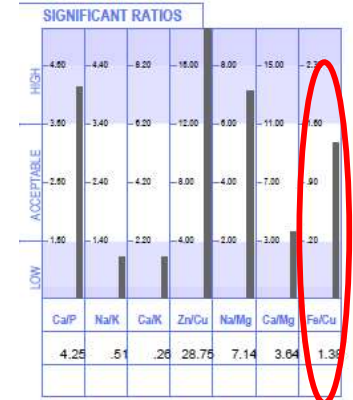
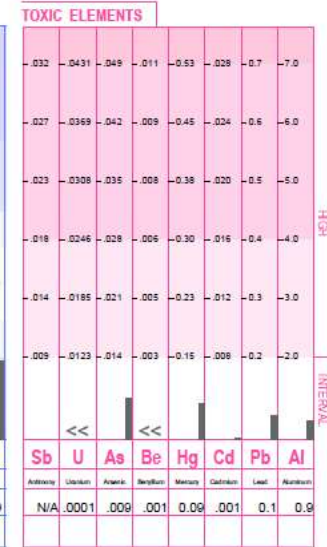
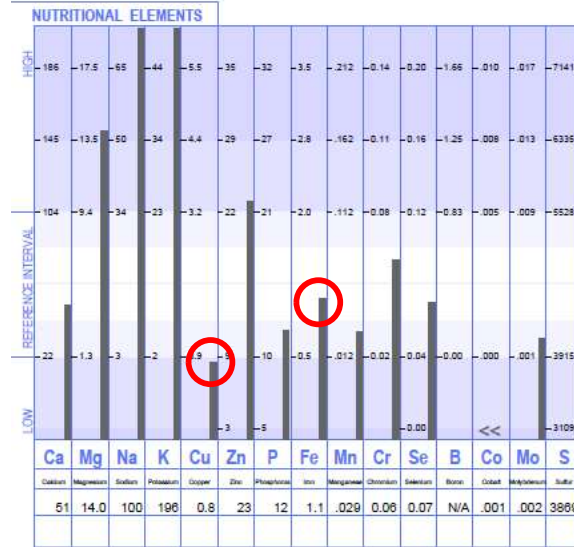
No to Iron Supplement



Copper Supplement
Selenium, Vit E & C

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LABORATORY NO.: 999999	
PROFILE NO.: 2	SAMPLE TYPE: SCALP
PATIENT:	AGE: 26 SEX: F METABOLIC TYPE: SLOW 4
REQUESTED BY: INTERCLINICAL	ACCOUNT NO.: 2216 DATE: 1/01/2022



***: Show Calibration Limit Value Given to Calibration Limit
 ONS: Sample Size Was Inadequate For Analysis.
 N/A: Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Forelets To The Occipital Region Of The Scalp.
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RATIOS	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	221.74		263/1
Cr/V	8.57		8/1
Cu/Mo	400.00		356/1
Fe/Co	1100.00		615/1
K/Co	196000.00		6350/1
K/Li	66333.33		6350/1
Mg/B	N/A		21/1
Si/Cu	4836.25		2668/1
Se/Tl	116.57		370/1
Se/Sn	.50		3.2/1
Zn/Sh	104.29		624/1

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TEST NOT GUESS

Fe or Cu or Sn or something else?

Remember: Fe or Cu like many other minerals:-

- In balance work nicely together
- Out of balance can be antagonistic!



Root cause of Anaemia?

UP THE ANTE

Broad health issues that we often supply answers for –
overworked, stress, “not looking after yourself, “Not enough self
care, still recovery etc.

But what is really going on?

Can we provide **reasons and solutions**.....

- Fatigue
- Immunity



FATIGUE

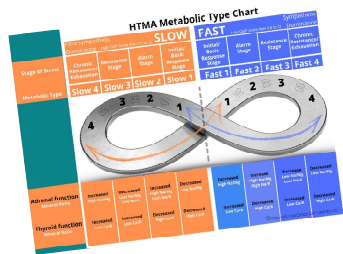


The regular go to: Iron Supplementation

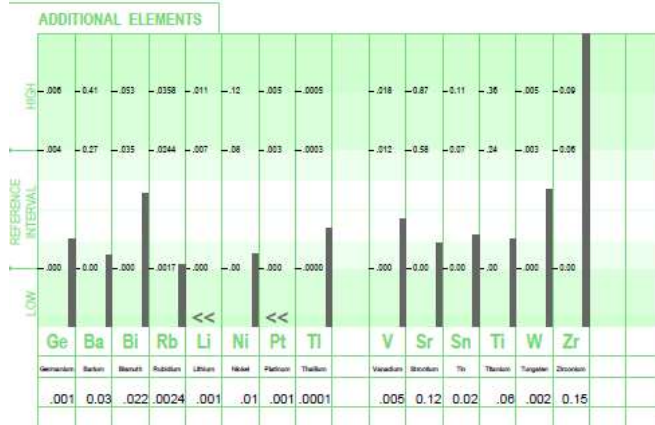
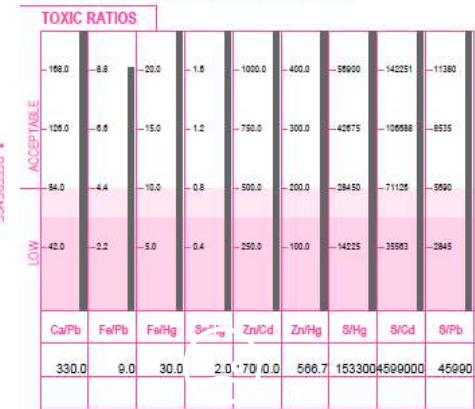
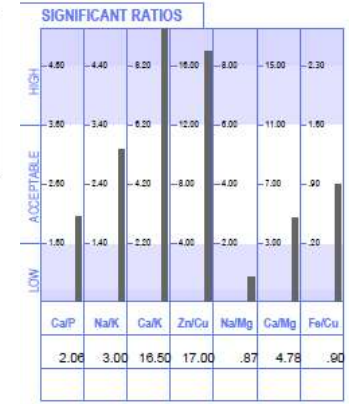
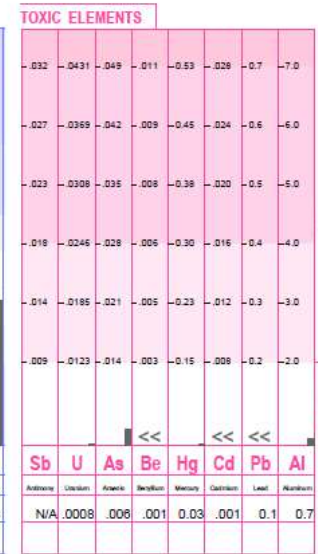
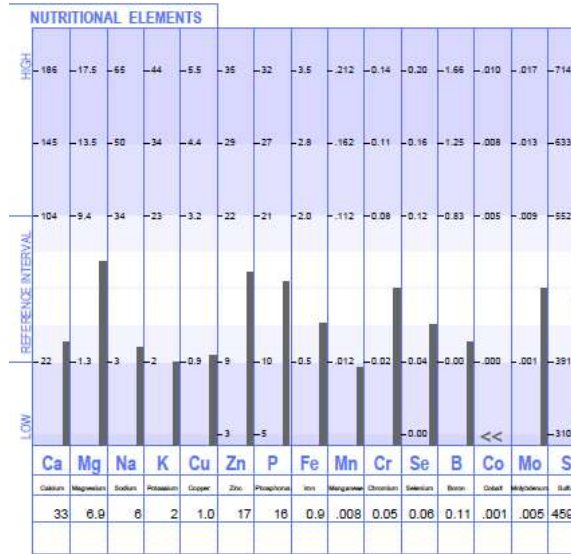
Example 1 – Presented with Fatigue

- Fast 4 – Hit the wall

Remember: look at the Metabolic Type Chart



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PATIENT:		AGE: 33	SEX: F
REQUESTED BY: INTERCLINICAL		ACCOUNT NO.: 2216	DATE: 1/03/2022
PROFILE NO.: 2		SAMPLE TYPE: SCALP	
METABOLIC TYPE: FAST 4			



<<< Below Calibration Limit; Value Given is Calibration Limit
 ONS Sample Size Was Inadequate For Analysis
 N/A Currently Not Available
 Ideal Levels and Interpretation Have Been Based On Hair Samples Obtained From The Mid-Parietal To The Occipital Region Of The Scalp.
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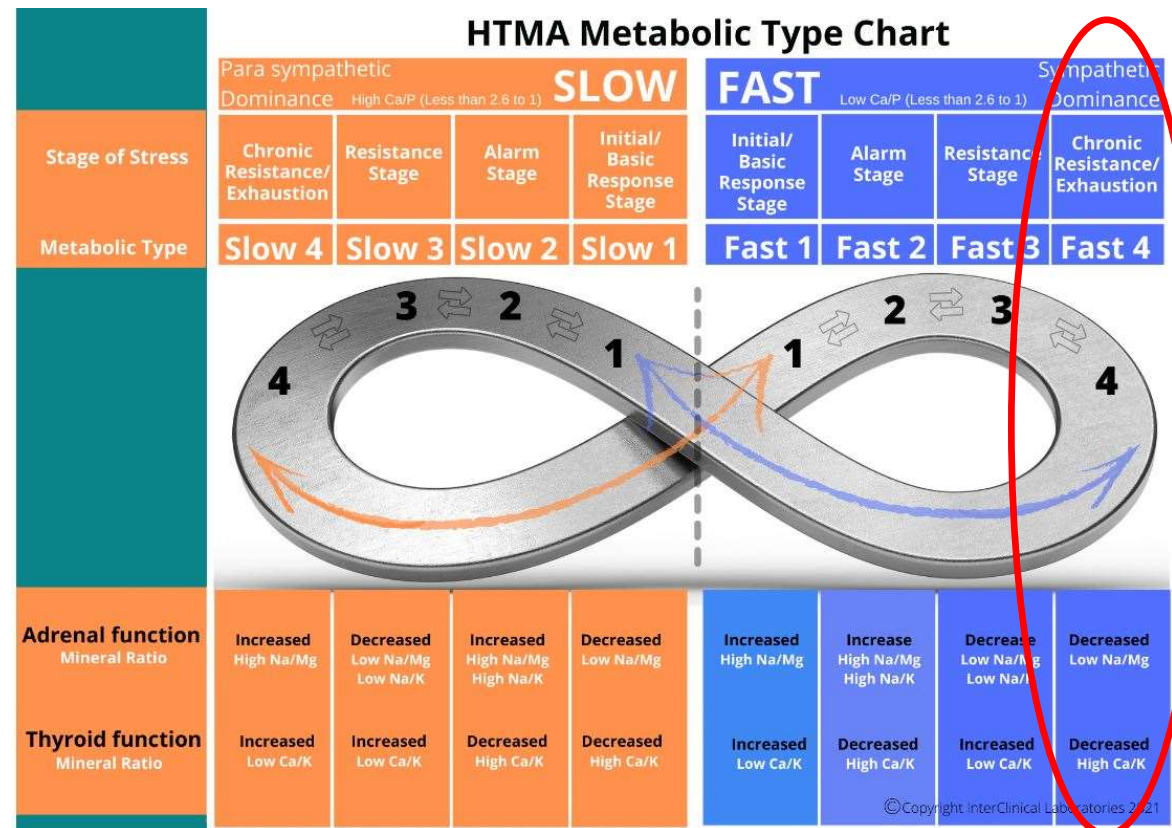
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	Current	Previous	
Ca/Sr	275.00		263/1
Cr/V	10.00		8/1
Cu/Mo	200.00		356/1
Fe/Co	900.00		615/1
K/Co	2000.00		6350/1
K/Li	2000.00		6350/1
Mg/B	62.73		21/1
Si/Cu	4590.00		2668/1
Se/Tl	600.00		370/1
Se/Sn	3.00		3.2/1
Zn/Sn	850.00		624/1

METABOLIC TYPE – USE THE RESOURCE

So we know:

- ▶ Decreased Adrenal Function
- ▶ Decreased Thyroid Function

This neuro-endocrine combination is associated with the exhaustion stage of stress, often reflected in extreme fatigue, depression, and anxiety.



Example 1 – Presented with Fatigue

- Low Na & K
- Low Na/Mg Ratio (↓adrenals)
- High Ca/K Ratio (↓thyroid)
- Low Cu (& Low Cu/Mo Ratio)
- Low Mineral Balances

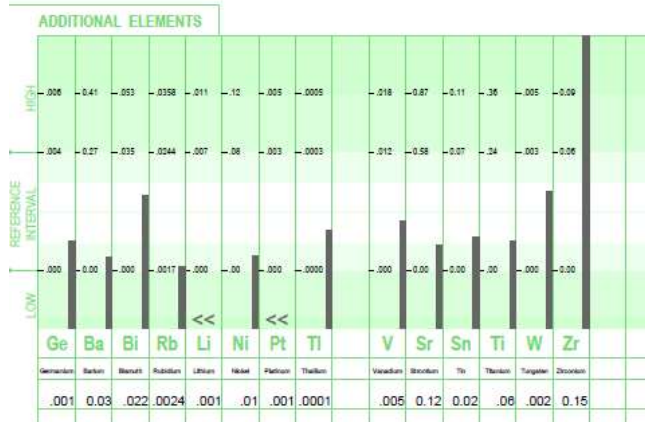
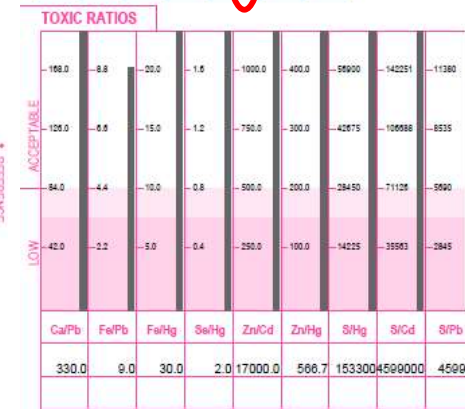
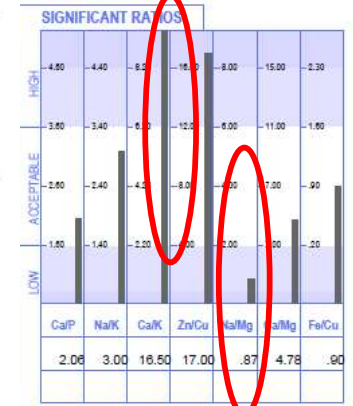
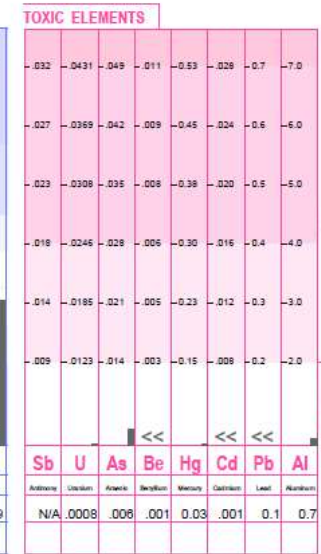
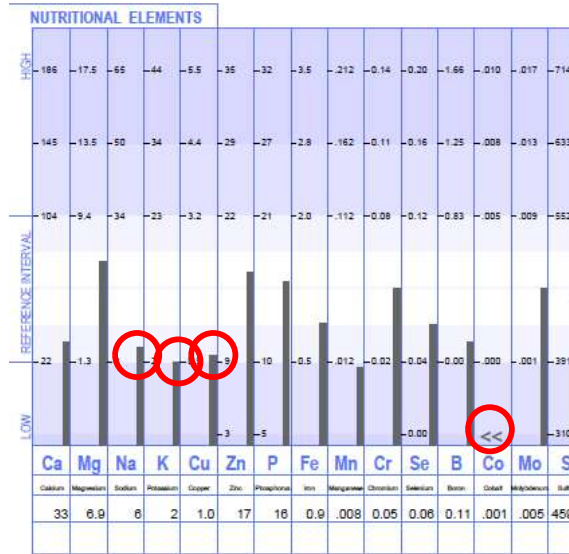


Calming Multi
Adrenal Support
Copper
Selenium, Vit E
Vit D, Vit B12

Note: Low nutrients across requiring support in producing HCl, Calming multi as "Tired & Wired" & no K

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LABORATORY NO.: 999999	
PROFILE NO.: 2	SAMPLE TYPE: SCALP
PATIENT:	AGE: 33 SEX: F METABOLIC TYPE: FAST 4
REQUESTED BY: INTERCLINICAL	ACCOUNT NO.: 2216 DATE: 1/03/2022



←< Below Calibration Limit; Value Given is Calibration Limit
 ONS Sample Size Was Inadequate For Analysis
 N/A Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Forehead To The Occipital Region Of The Scalp.
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1/03/2022
 CURRENT TEST RESULTS

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ADDITIONAL RATIOS

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	275.00		263/1
Ca/P	10.00		8/1
Cu/Mo	200.00		356/1
Fe/Cu	900.00		615/1
K/Co	2000.00		6350/1
K/Li	2000.00		6350/1
Mg/B	62.73		21/1
Si/Cu	4590.00		2668/1
Se/Tl	600.00		370/1
Se/Sn	3.00		3.2/1
Zn/Sn	850.00		624/1

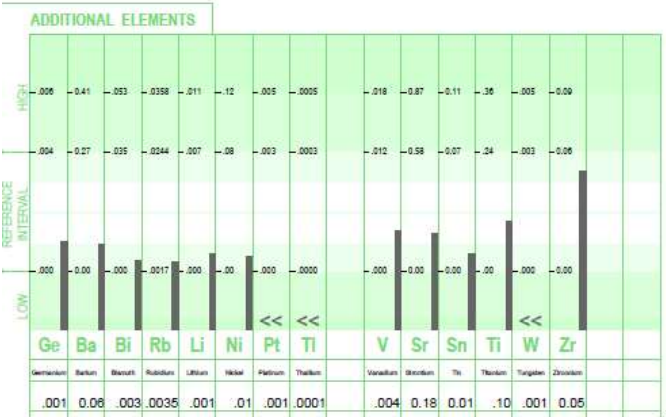
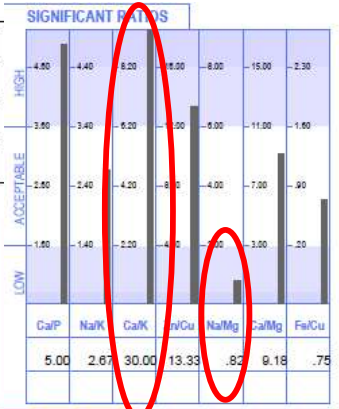
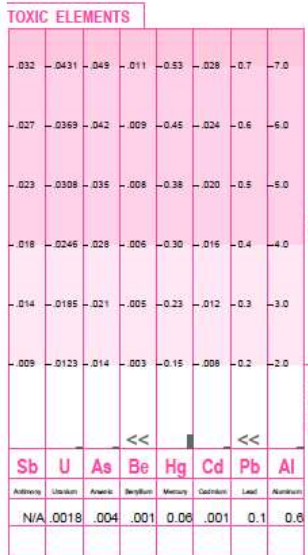
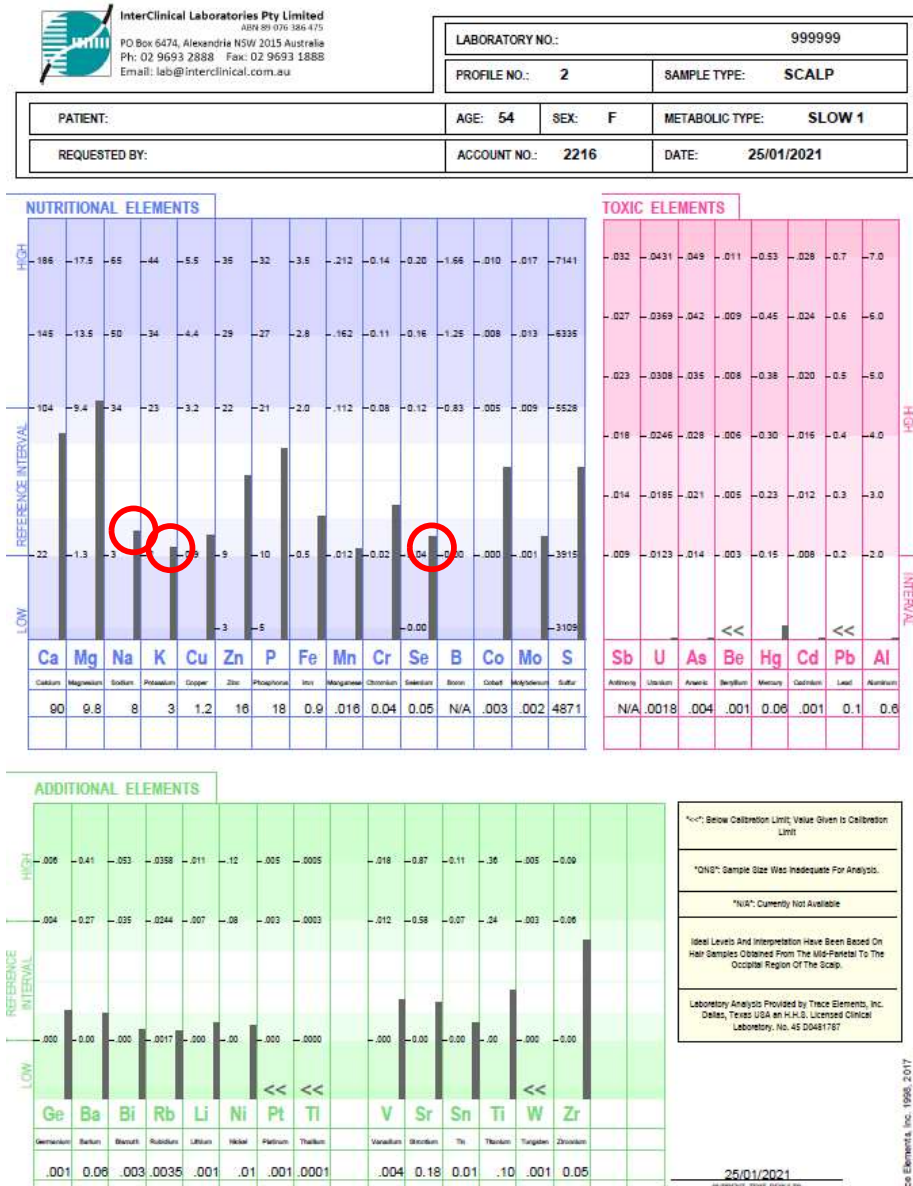
Example 2 – Presented with Fatigue

- Low K & Na Level
- Low Na/Mg Ratio (↓adrenals)
- High Ca/K Ratio (↓thyroid)
- Good levels of Ca & Mg



Energy Multi (no Ca & Mg)
Adrenal Support
Potassium,
Selenium, Vit E
Vit B6, Vit C

Remember: We would not want Ca & Mg in the multi as "sedative minerals"



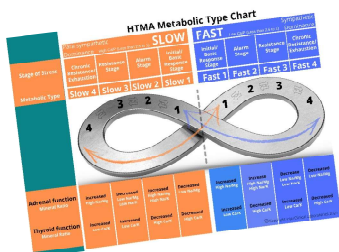
“N/A”: Below Calibration Limit; Value Given to Calibration Limit
 “QND”: Sample Size Was Inadequate For Analysis.
 “N/A”: Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Foretail To The Occipital Region Of The Scalp.
 Laboratory Analysis Provided by Trace Elements, Inc. Dallas, Texas USA an H.H.S. Licensed Clinical Laboratory. No. 45 D0481787

RATIO	CALCULATED VALUE	EXPECTED
Ca/Sr	Current 500.00	263/1
Cu/V	10.00	8/1
Cu/Mo	600.00	356/1
Fe/Co	300.00	615/1
K/Co	1000.00	6350/1
K/Li	3000.00	6350/1
Mg/B	N/A	21/1
S/Cu	4059.17	2668/1
Se/Tl	500.00	370/1
Se/Sn	5.00	3.2/1
Zn/Sn	1600.00	624/1

Example 3 – Presented with Fatigue

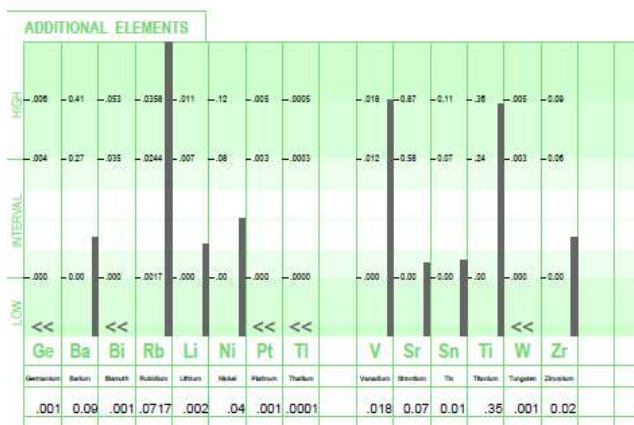
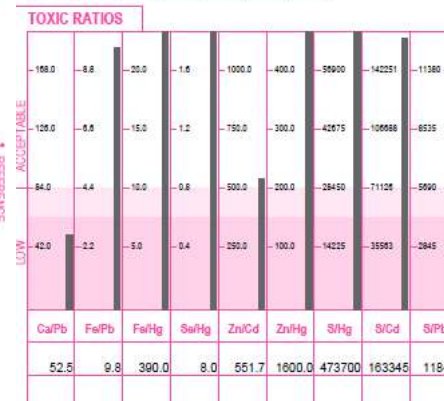
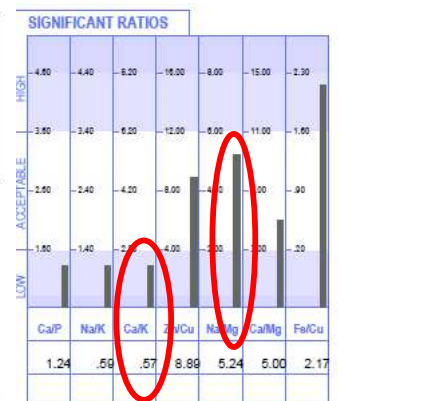
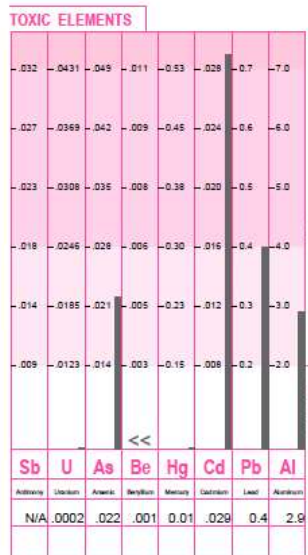
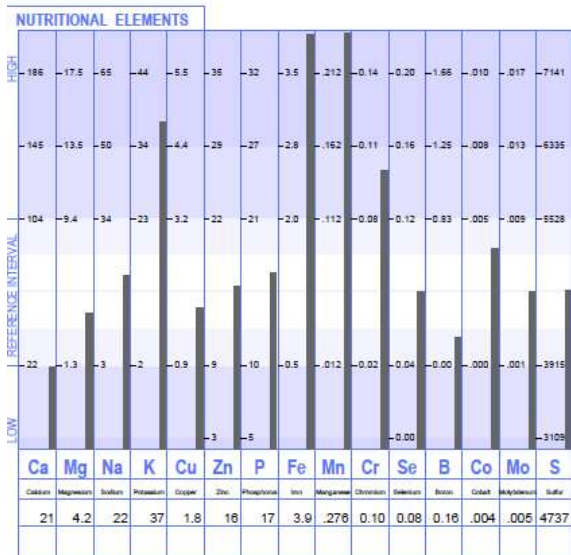
- Fast 1

Remember: look at the Metabolic Type Chart



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LABORATORY NO.: 999999	
PROFILE NO.: 2	SAMPLE TYPE: SCALP
PATIENT:	AGE: 61 SEX: M METABOLIC TYPE: FAST 1
REQUESTED BY: INTERCLINICAL	ACCOUNT NO.: 2216 DATE: 01/05/2022



<<< Below Calibration Limit; Value Given is Calibration Limit
 ONS Sample Size Was Inadequate For Analysis.
 N/A Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Panicle To The Occipital Region Of The Scalp.
 Laboratory Analysis Provided by Trace Elements, Inc. Dallas, Texas USA an H-H-S. Licensed Clinical Laboratory. No. 45 D0481787

1/05/2022
 CURRENT TEST RESULTS

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ADDITIONAL RATIOS

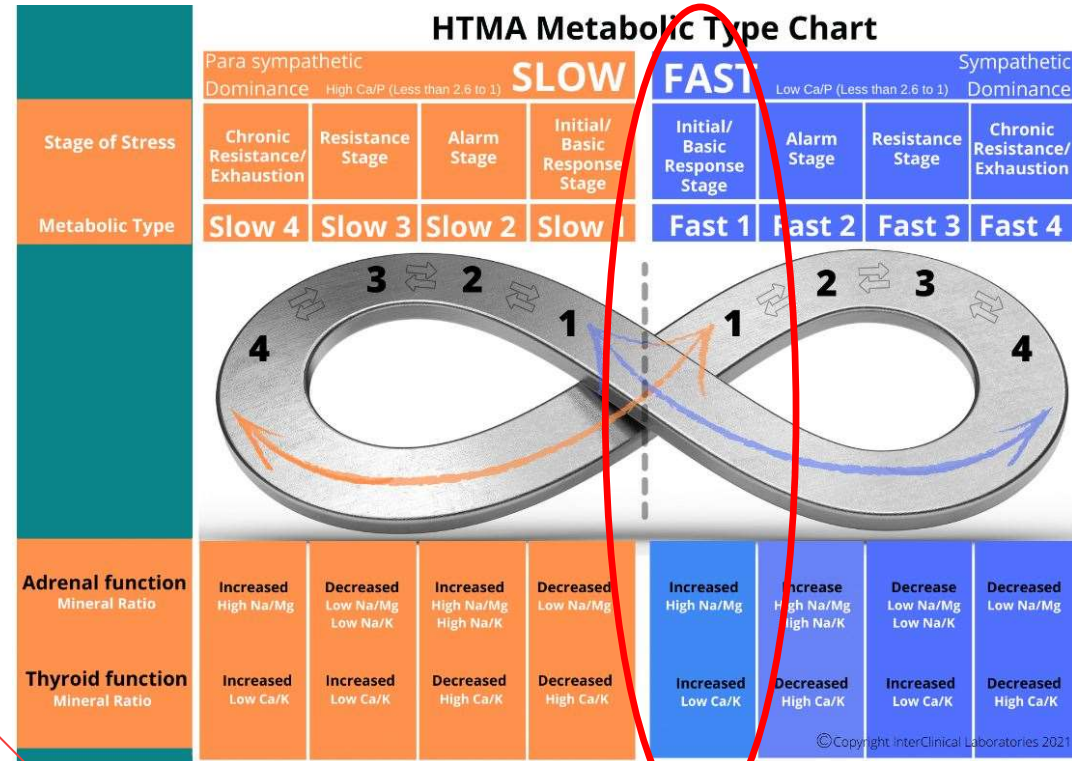
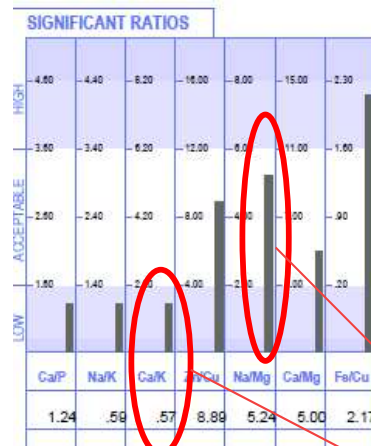
RAIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	300.00		263/1
Cr/V	5.56		8/1
Cu/Mo	360.00		356/1
Fe/Co	975.00		615/1
K/Co	9250.00		6350/1
K/Li	18500.00		6350/1
Mg/B	26.25		21/1
Si/Cu	2631.67		2668/1
Se/Ti	800.00		370/1
Se/Sn	8.00		3.2/1
Zn/Sn	1800.00		624/1

METABOLIC TYPE – USE THE RESOURCE

So we know:

- ▶ Increased Adrenal Function
- ▶ Increased Thyroid Function

Classified as sympathetic dominant with increased adrenal activity and increased thyroid function. This synchronous neuro- endocrine combination will frequently result in increased energy levels. However, if an imbalance develops between the adrenal and thyroid glands, the ability to sustain energy levels may become diminished.



Adrenals Not bad!

Thyroid needs supporting!

Example 3 – Presented with Fatigue

- Low Ca Level
- Low Ca/K Ratio (↑thyroid)
- Low Na/K Ratio (↓Vitality)
- High Cd, Pb, As, Al

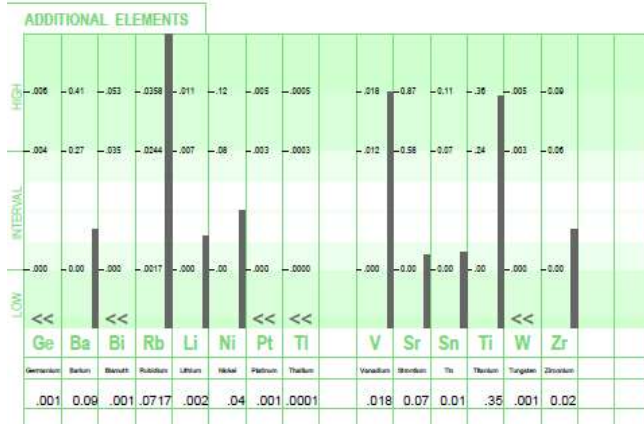
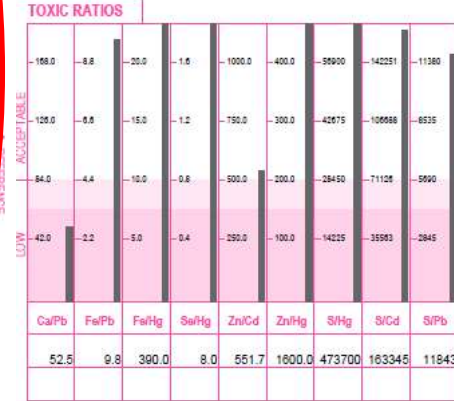
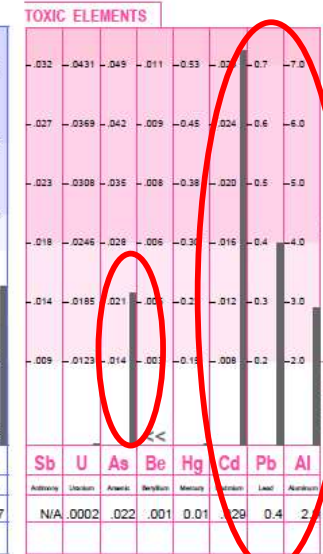
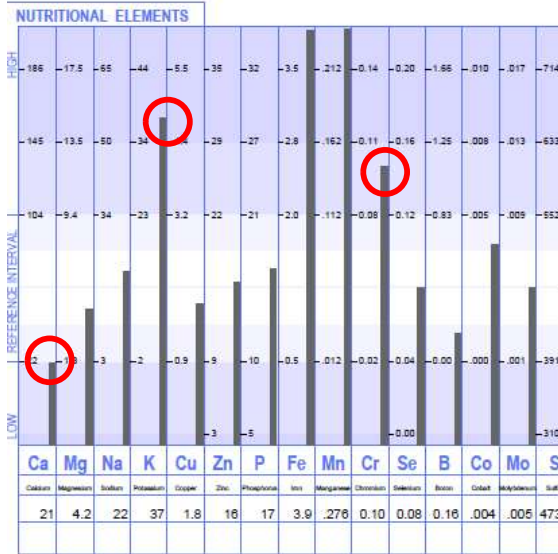


Calming Multi (support energy)
 Ca (antagonise K & Rb, Pb & Cd)
 Cu (antagonise Fe)
 Selenium & Vit E (antagonise As)
 Digestive Enzyme
 Dunaliella Salina (micro algae to support detox & energy)

Remember: Read in the report food to increase and to avoid!

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LABORATORY NO.: 999999	
PROFILE NO.: 2	SAMPLE TYPE: SCALP
PATIENT:	AGE: 61 SEX: M METABOLIC TYPE: FAST 1
REQUESTED BY: INTERCLINICAL	ACCOUNT NO.: 2216 DATE: 01/05/2022



<<< Below Calibration Limit; Value Given is Calibration Limit
 ONS Sample Size Was Inadequate For Analysis.
 N/A Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Parietal To The Occipital Region Of The Scalp.
 Laboratory Analysis Provided by Trace Elements, Inc. Dallas, Texas USA an H-H-S. Licensed Clinical Laboratory. No. 45 D0481787

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	300.00		263/1
Cr/V	5.56		8/1
Cu/Co	360.00		356/1
Fe/Co	975.00		615/1
K/Co	9250.00		6350/1
K/Li	18500.00		6350/1
Mg/B	26.25		21/1
Si/Cu	2631.67		2668/1
Se/Tl	800.00		370/1
Se/Sn	8.00		3.2/1
Zn/Sr	1800.00		624/1

1/05/2022
 CURRENT TEST RESULTS

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IMMUNITY

Very topical!

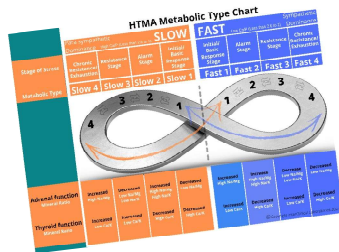
Let's look at some cases...



The regular go to: Zn Supplementation

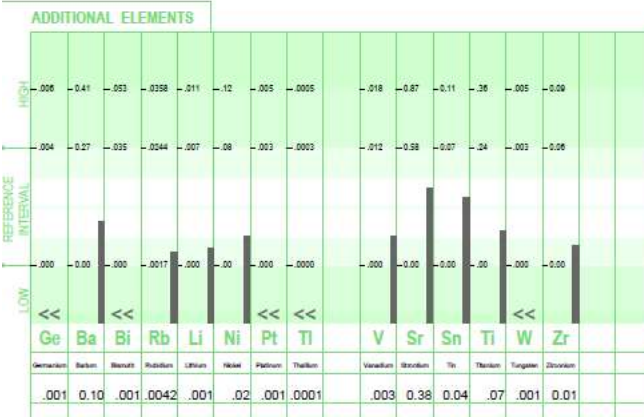
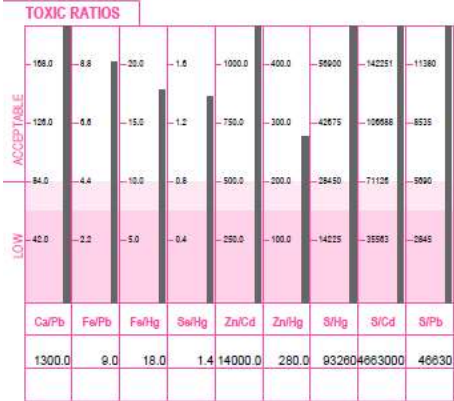
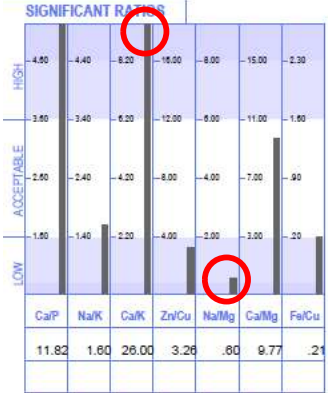
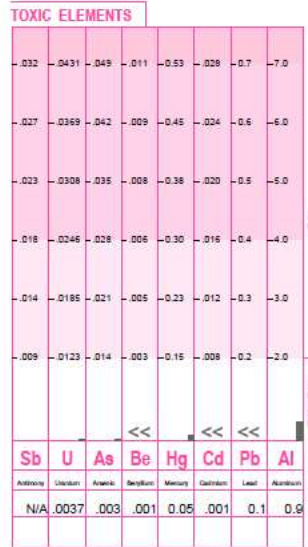
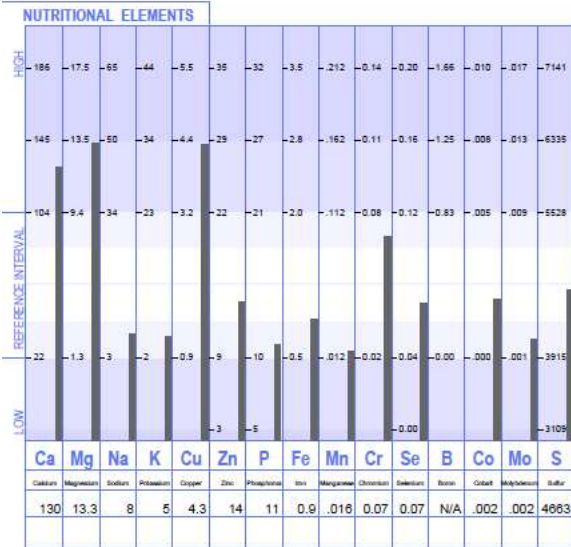
Example 1 – Chronic Immune issues

- Metabolic Type - Slow 1



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LABORATORY NO.: 999999	
PROFILE NO.: 2	SAMPLE TYPE: SCALP
PATIENT:	AGE: 66 SEX: M METABOLIC TYPE: SLOW 1
REQUESTED BY: INTERCLINICAL	ACCOUNT NO.: 2216 DATE: 01/11/2021



C: Below Calibration Limit; Value Given to Calibration Limit
 DN: Sample Size Was Inadequate For Analysis.
 N/A: Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Parietal To The Occipital Region Of The Scalp.
 Laboratory Analysis Provided by Trace Elements, Inc. Dallas, Texas USA an H.H.S. Licensed Clinical Laboratory, No. 45 D0481787

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	342.11		263/1
Cr/V	23.33		8/1
Cu/Mo	2150.00		356/1
Fe/Co	450.00		615/1
K/Co	2500.00		6350/1
K/Li	5000.00		6350/1
Mg/B	N/A		21/1
Si/Cu	1084.42		2668/1
Se/Tl	700.00		370/1
Se/Sn	1.75		3.2/1
Zn/Sn	350.00		624/1



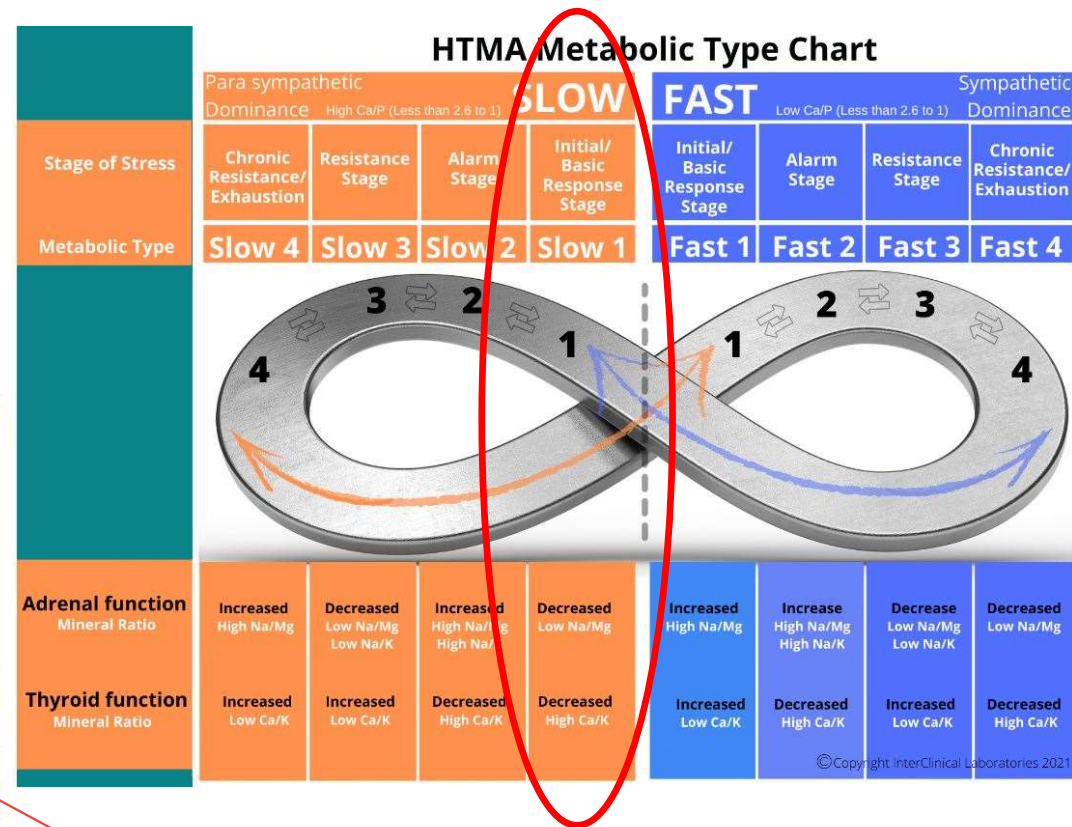
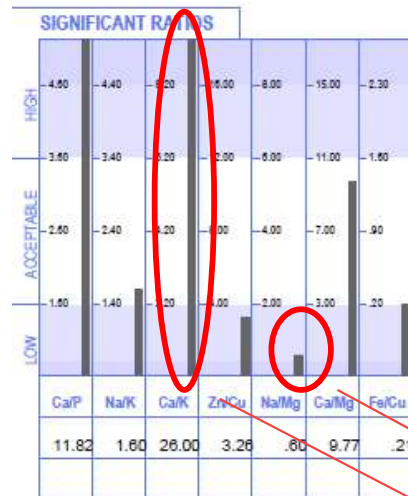
01/11/2021
 CURRENT TEST RESULTS

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METABOLIC TYPE - USE THE RESOURCE

So we know:

- ▶ Decreased Adrenal Function
- ▶ Decreased Thyroid Function



Adrenal Function
Thyroid Function

Example 1 – Chronic Immune issues

- Low Zn/Cu Ratio
- Relatively high Cu
- Relatively high Ca

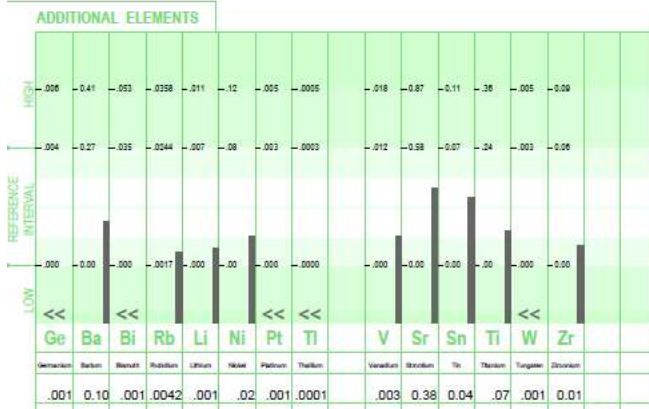
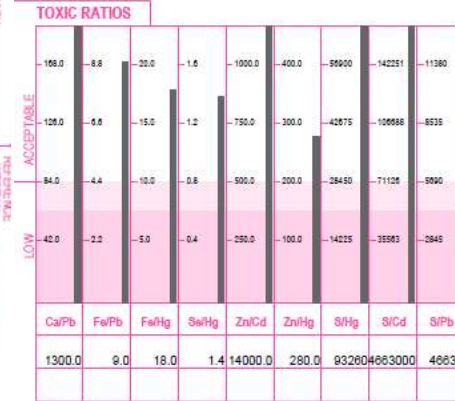
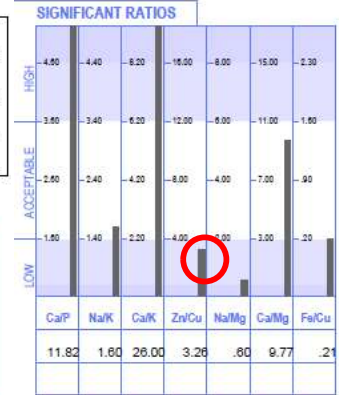
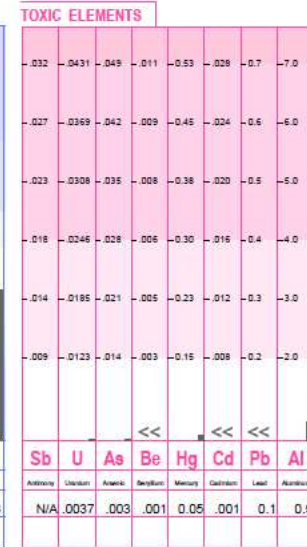
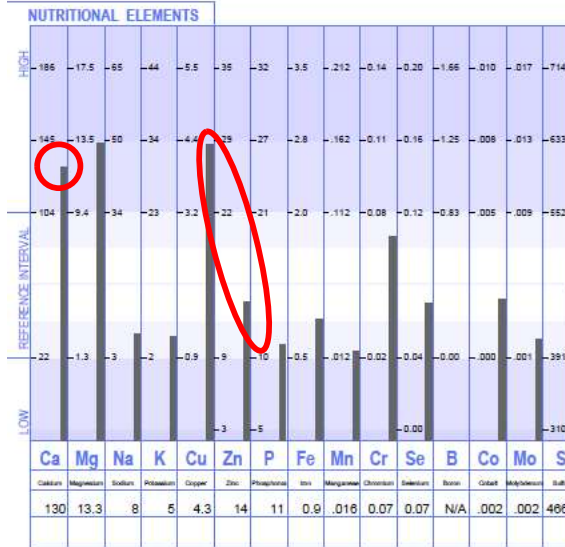


Zinc Energy Multi (no Ca & Mg) Molybdenum (antagonise Cu) Vit C & B6

Remember: Elevated calcium concentrations can be viral-inducing, reducing the tissue Ca aid in viral reduction.

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LABORATORY NO.: 999999
 PROFILE NO.: 2 SAMPLE TYPE: SCALP
 PATIENT: AGE: 66 SEX: M METABOLIC TYPE: **SLOW 1**
 REQUESTED BY: INTERCLINICAL ACCOUNT NO.: 2216 DATE: 01/11/2021



C: Below Calibration Limit; Value Given to Calibration Limit
 DN: Sample Size Was Inadequate For Analysis.
 N/A: Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Parietal To The Occipital Region Of The Scalp.
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01/11/2021
 CURRENT TEST RESULTS

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RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	342.11		263/1
Cr/V	23.33		8/1
Cu/Mo	2150.00		356/1
Fe/Co	450.00		615/1
K/Co	2500.00		6350/1
K/Li	5000.00		6350/1
Mg/B	N/A		21/1
Si/Cu	1084.42		2668/1
Se/Ti	700.00		370/1
Se/Sn	1.75		3.2/1
Zn/Sn	350.00		624/1

Example 2 – Chronic Immune Issues

- High Zn
- Very high Zn/Cu Ratio
- High Na/Mg ratio
- Low Ca

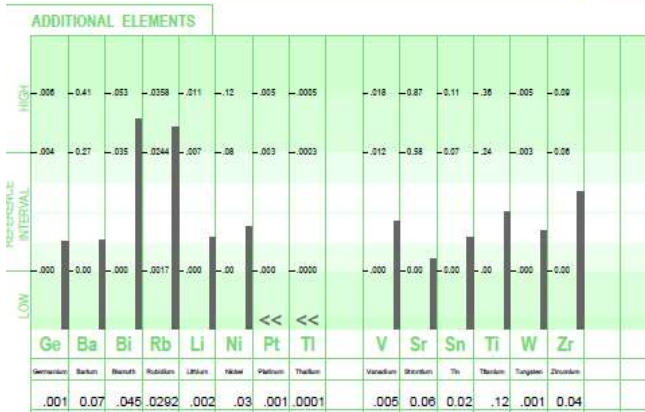
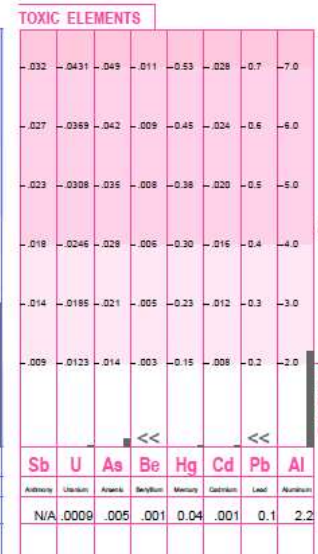
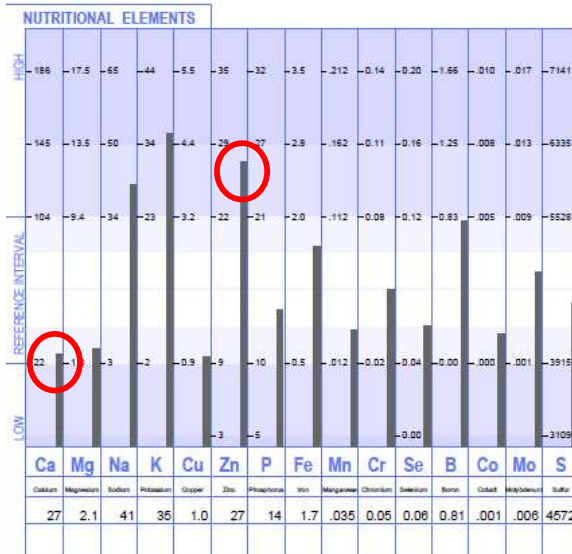


Copper
Mg (reduce inflammation & assist with Vit D utilisation)
Vit C & B6

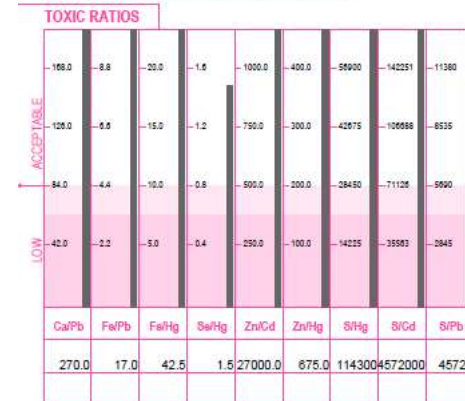
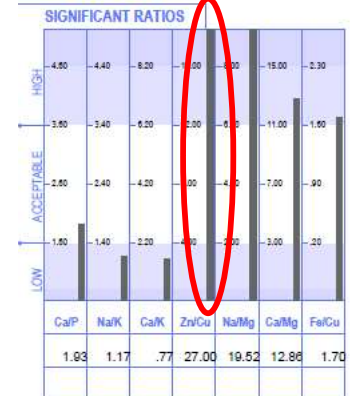
Remember: Chronic immune issues as Zn antagonizing Cu and they would have difficulty fighting bacterial infections in the body! Mg assists with

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LABORATORY NO.: 9999999
PROFILE NO.: 2 SAMPLE TYPE: SCALP
PATIENT: AGE: 24 SEX: M METABOLIC TYPE: FAST 1
REQUESTED BY: INTERCLINICAL ACCOUNT NO.: 2216 DATE: 1/06/2022



*N/A: Below Calibration Limit; Value Given Is Calibration Limit
 *ONS: Sample Size Was Inadequate For Analysis
 *N/A: Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Parietal To The Occipital Region Of The Scalp.
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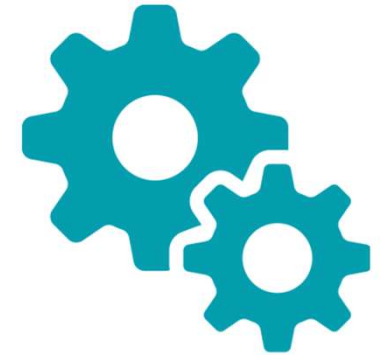


ADDITIONAL RATIOS

RATIO	CALCULATED VALUE	PREVIOUS	EXPECTED
Ca/Sr	450.00		263/1
Ce/V	10.00		8/1
Cu/Mo	166.67		356/1
Fe/Co	1700.00		615/1
K/Co	35000.00		6350/1
K/Li	17500.00		6350/1
Mg/B	2.50		2/1
Si/Cu	4572.00		2668/1
Se/Ti	600.00		370/1
Se/Sn	3.00		3.2/1
Zn/Sn	1350.00		624/1

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32 TO CHANGE THE PACE



Up to now – we have focused on conditions – let’s look at HTMA as a health screening tool!

Let’s look at three patients in our “clinic”.
Initial consult we’ve ordered the HTMA, and we are now at the follow up consult.

Let’s meet Dianne, John & Maddie

DIANNE – INNER CITY MELBOURNE

- ▷ Female mid 50's
- ▷ Want's advice re aging
- ▷ Slight “bladder leakage”
- ▷ Hates the wrinkles
- ▷ Thinning hair



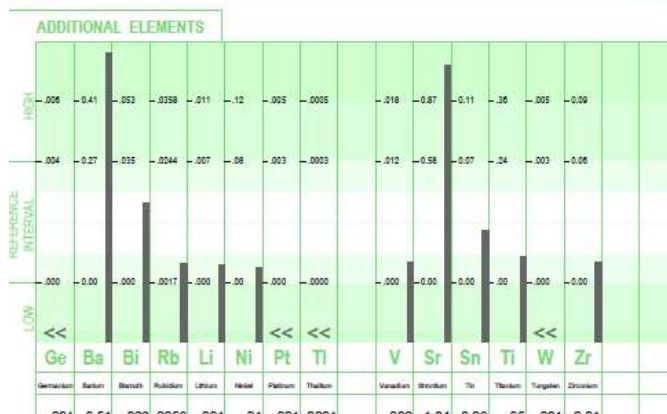
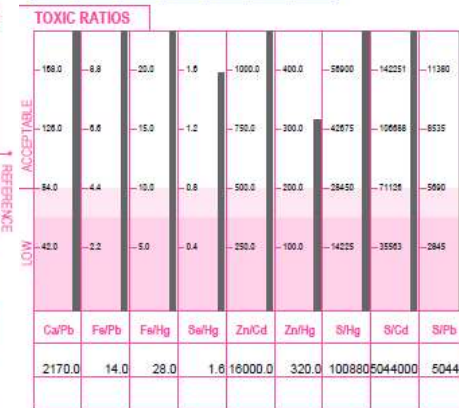
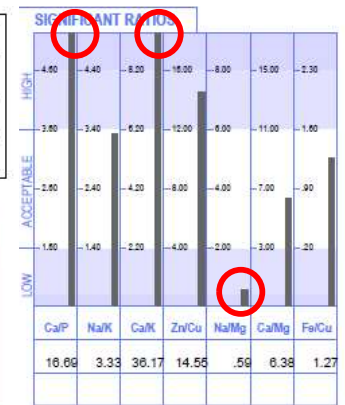
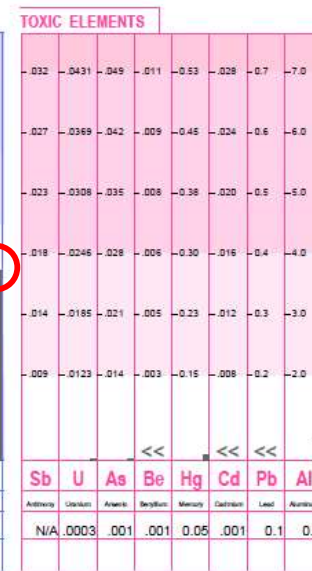
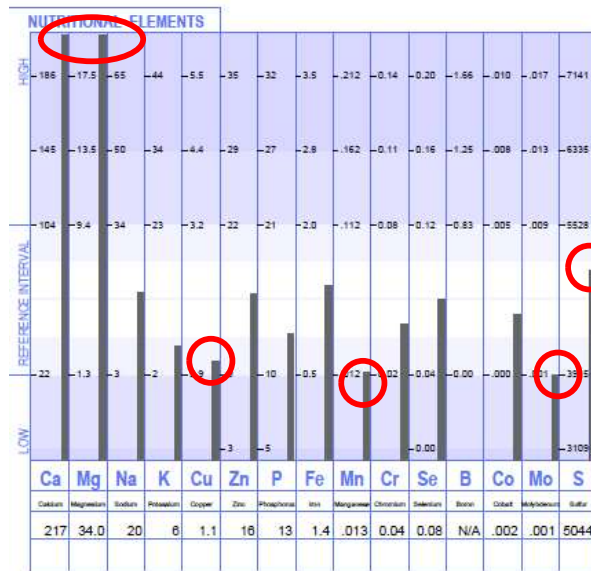
DIANNE

- High Ca & Mg
- Low Cu & Mn (affects Collagen)
- High Ca/K (Hypothyroid/Hair Loss)
- High Ca (Drying, Wrinkles, "leakage")
- Climbing S (Liver support req.)
- Low Mo (so S cannot be utilised properly)

Remember: Often when we see Sr & Ba high, we see a high Ca & Mg.

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 Email: lab@interclinical.com.au

LABORATORY NO.: 9999999	
PROFILE NO.: 2	SAMPLE TYPE: SCALP
PATIENT:	AGE: 54 SEX: F METABOLIC TYPE: SLOW 1
REQUESTED BY: INTERCLINICAL	ACCOUNT NO.: 2216 DATE: 1/12/2021



*-<: Below Calibration Limit; Value Given to Calibration Limit
 *ONS: Sample Size Was Inadequate For Analysis.
 *NA: Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Collected From The Mid-Parietal To The Occipital Region Of The Scalp.
 Laboratory Analysis Provided by Trace Elements, Inc. Dallas, Texas USA an H-L-S. Licensed Clinical Laboratory. No. 45 D0481787

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RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	208.65		263/1
Cr/V	20.00		8/1
Cu/Mo	1100.00		356/1
Fe/Co	700.00		615/1
K/Co	3000.00		6350/1
K/Li	6000.00		6350/1
Mg/B	N/A		21/1
S/Cu	4585.45		2668/1
Se/Tl	800.00		370/1
Se/Sn	2.67		3.2/1
Zn/Sr	533.33		624/1

DIANNE

Remember:
Always read
Tendency & the
Comments.
There is a lot
of useful
information!

TENDENCY	1	2	3	4	5	6	7	8
DEPRESSION								
FATIGUE								
HYPOADRENIA								
HYPOTHYROID								

COMMENTS

DEPRESSION AND HYPOTHYROIDISM:

An elevation of calcium relative to potassium is associated with hypothyroidism. Depression is often seen when a concomitant hypothyroid condition exists.

FATIGUE:

High calcium to potassium is associated with an underactive thyroid. Fatigue is often a common complaint associated with low thyroid function.

HYPOADRENIA:

Low tissue sodium and potassium relative to calcium and magnesium is associated with adrenal insufficiency. This may result in low blood pressure, postural hypotension, and fatigue.

HYPOTHYROID:

High calcium relative to potassium indicates a tendency toward a low thyroid function. It has been found that an elevated TSH, even when circulating T-3 and T-4 are normal, is an early indication of hypothyroidism.

DIANNE

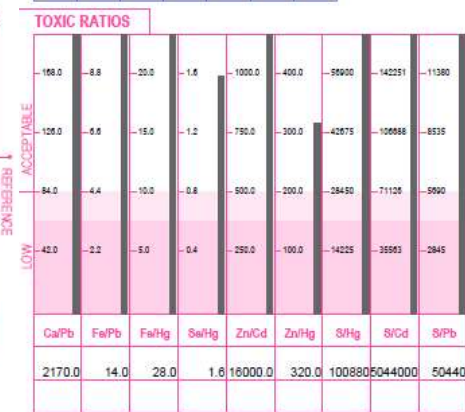
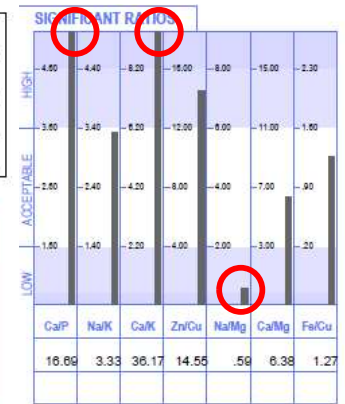
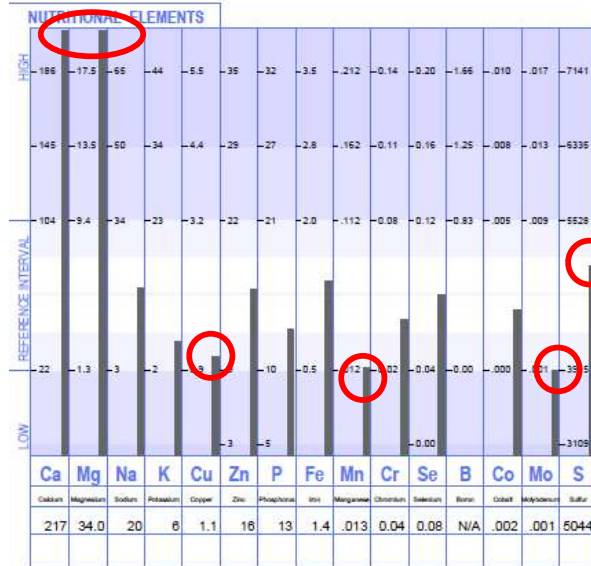


Energy Multi (no Ca & Mg)
 Adrenal Support
 Manganese
 (Thyroid Support & support Collagen & manage Ca & Mg)
 Vit C, Vit E
 HCl Stimulant
 Liver Support

Note: Slower metabolic types are usually slower to respond to therapy.

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 Email: lab@interclinical.com.au

LABORATORY NO.: 9999999	
PROFILE NO.: 2	SAMPLE TYPE: SCALP
PATIENT:	AGE: 54 SEX: F METABOLIC TYPE: SLOW 1
REQUESTED BY: INTERCLINICAL	ACCOUNT NO.: 2216 DATE: 1/12/2021



*N/A: Below Calibration Limit; Value Given to Calibration Limit
 *QNS: Sample Size Was Inadequate For Analysis.
 *N/A: Currenty Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Forehead To The Occipital Region Of The Scalp.
 Laboratory Analysis Provided by Trace Elements, Inc. Dallas, Texas USA 817-414-0100 Licensed Clinical Laboratory; No. 45 D0481787

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RATIO	CALCULATED VALUE	EXPECTED
Ca/Sr	208.65	263/1
Cr/V	20.00	8/1
Cu/Mo	1100.00	356/1
Fe/Co	700.00	615/1
K/Co	3000.00	6350/1
K/Li	6000.00	6350/1
Mg/B	N/A	21/1
Si/Cu	4585.45	2668/1
Se/Tl	800.00	370/1
Se/Sn	2.67	3.2/1
Zn/Sr	533.33	624/1

JOHN – TRADIE

- ▷ Middle-aged spread
- ▷ Sugar cravings
- ▷ Diagnosed with diverticulitis
- ▷ Not as much energy as he used to have



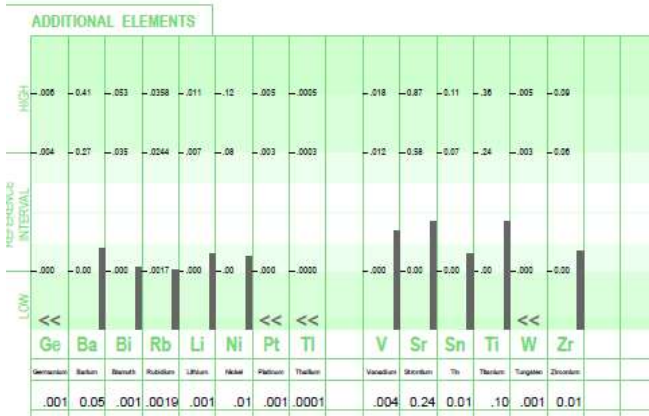
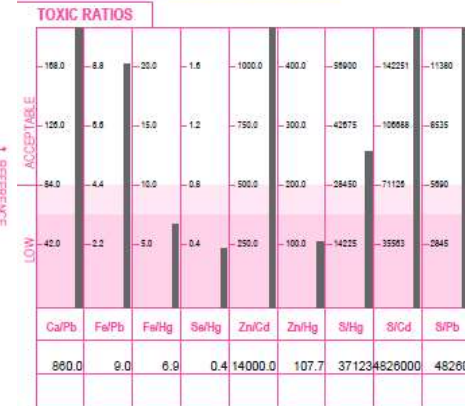
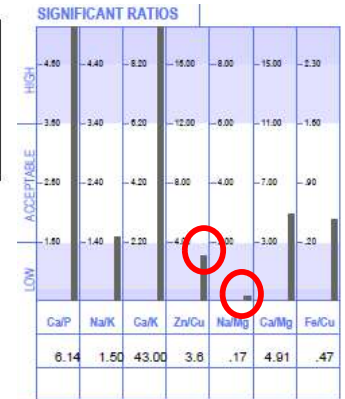
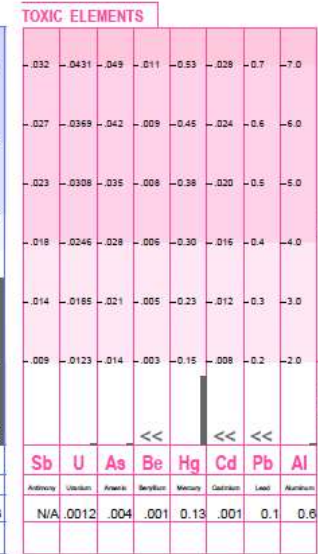
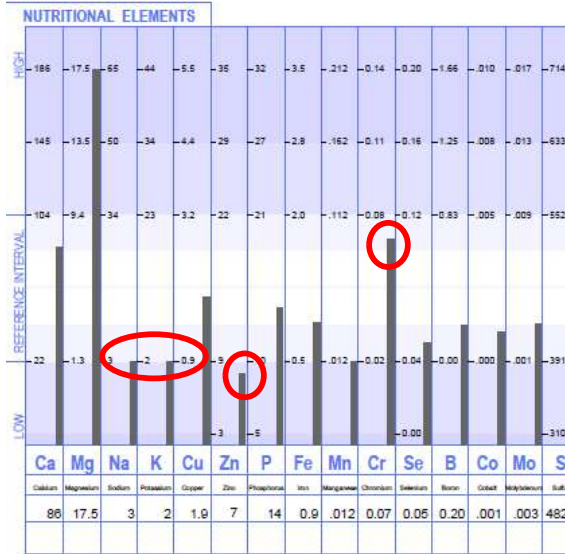
JOHN

- Low Zn & Zn/Cu Ratio (low testosterone)
- High Cr (Blood sugar dysregulation)
- Low Na & K (Low HCl, "gas")
- Low Na/Mg (Adrenals – sluggish)
- Heavy Metals for a tradie are quite good!

Remember: Low Zn could be contributing to low testosterone. Low HCl – food fermenting, not been broken down properly). High Cr indicates utilization issue).

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LABORATORY NO.: 999999	
PROFILE NO.: 2	SAMPLE TYPE: SCALP
PATIENT:	AGE: 42 SEX: M METABOLIC TYPE: SLOW 1
REQUESTED BY: INTERCLINICAL	ACCOUNT NO.: 2216 DATE: 1/12/2021



*-H: Below Calibration Limit; Value Given Is Calibration Limit
 *DNH: Sample Size Was Inadequate For Analysis
 *NA: Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Forehead To The Occipital Region Of The Scalp.
 Laboratory Analysis Provided by Trace Elements, Inc. Dallas, Texas USA an H-L-S Licensed Clinical Laboratory, No. 45 D0481787

1/12/2021
 CURRENT TEST RESULTS

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ADDITIONAL RATIOS

RATIO	CALCULATED VALUE	EXPECTED
Ca/Sr	358.33	263/1
Cr/V	17.50	8/1
Cu/Mo	633.33	356/1
Fe/Co	900.00	615/1
K/Co	2000.00	6350/1
Mg/B	87.50	21/1
S/Co	2540.00	2668/1
Se/Ti	500.00	370/1
Se/Sn	5.00	3.2/1
Zn/Sn	1400.00	624/1

39

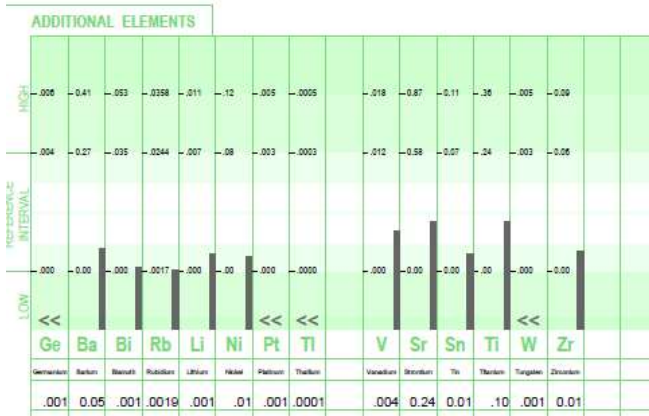
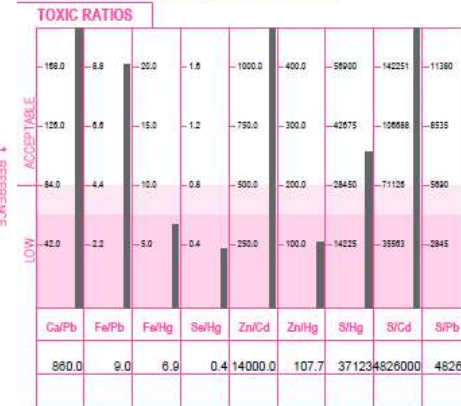
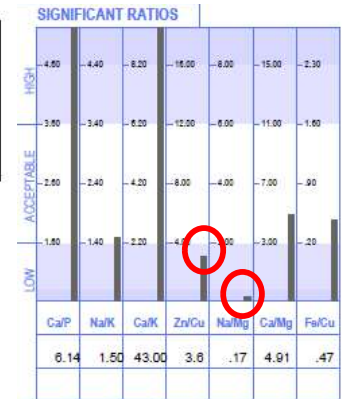
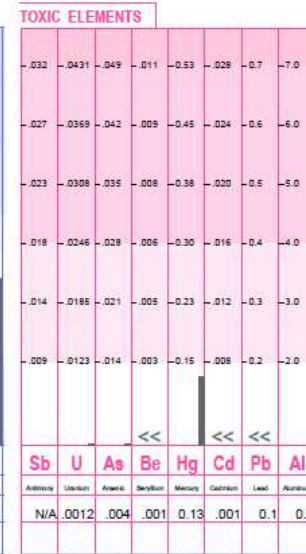
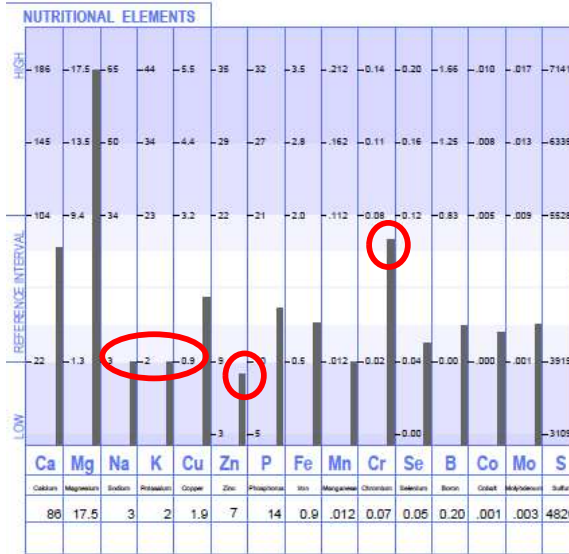
JOHN



Multi (No Ca)
 Adrenal Support
 Zn Supplement
 Mn (help balance
 Cr, & support
 insulin)
 K (energy)
 Vitamin B6 & C
 HCl stimulant

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 Email: lab@interclinical.com.au

LABORATORY NO.: 999999	
PROFILE NO.: 2	SAMPLE TYPE: SCALP
PATIENT:	AGE: 42 SEX: M METABOLIC TYPE: SLOW 1
REQUESTED BY: INTERCLINICAL	ACCOUNT NO.: 2216 DATE: 1/12/2021



*-: Below Calibration Limit Value Given to Calibration Limit
 DNQ: Sample Size Was Inadequate For Analysis.
 N/A: Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Forehead To The Occipital Region Of The Scalp.
 Laboratory Analysis Provided by Trace Elements, Inc. Dallas, Texas USA an N.L.S. Licensed Clinical Laboratory, No. 45 D0481787

1/12/2021
 CURRENT TEST RESULTS

Trace Elements, Inc. 1998, 2017
 InterClinical Laboratories Pty Limited

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	358.33		263/1
Cr/V	17.50		8/1
Cu/Mo	633.33		356/1
Fe/Co	900.00		615/1
K/Co	2000.00		6350/1
Mg/B	87.50		21/1
Si/Cu	2540.00		2668/1
Se/Tl	500.00		370/1
Se/Sn	5.00		3.2/1
Zn/Sn	1400.00		624/1

MADDIE – 9, OUTBURSTS FOLLOW UP HTMA (AT 4 MONTHS)

- ▷ Anger outbursts
- ▷ Mood swings
- ▷ Fussy eater

- ▷ Follow up HTMA
- ▷ Mother sees reduction in outbursts



MADDIE

Over the 4 months

- Reduction in Cu (still high)
- Improvement in Fe/Cu ratio
- Improved Ca/P & Ca/K (Less withdrawn, Thyroid function improving)
- Improved electrolytes,
- Improved Se
- Mobilising heavy metal (bone starting releasing) or new exposure

Cu dropped from 34.9mg% to 15.6mg%

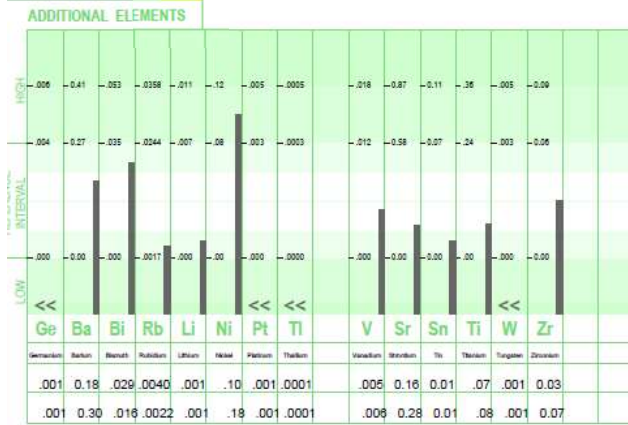
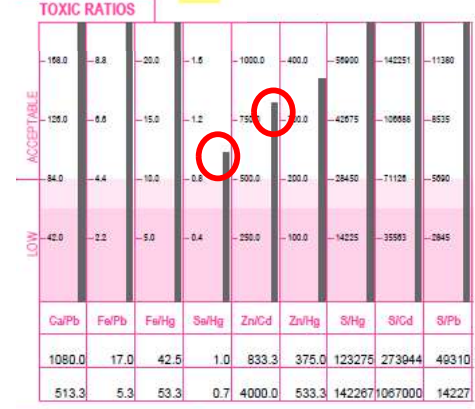
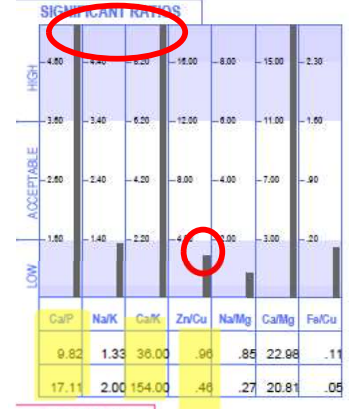
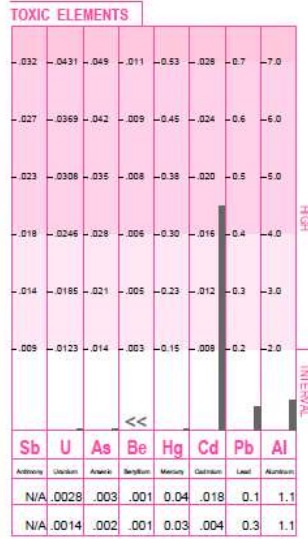
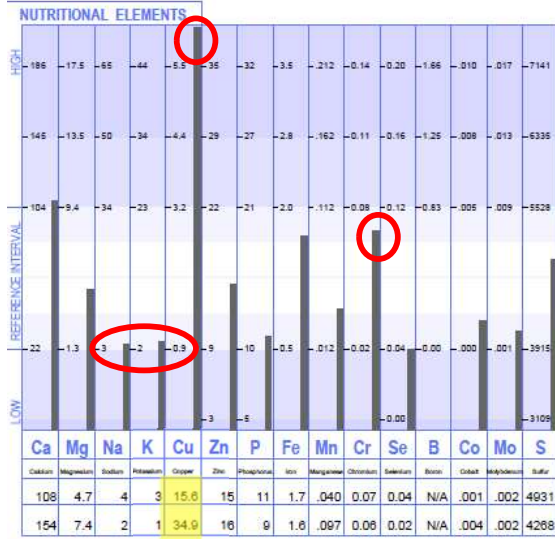
Ca/P ratio from 17.11 to 9.82 (ideal is 2.6)

Ca/K from 154 to 36 (ideal 4.2)

Zn/Cu from .46 to .96 (ideal 3)

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LABORATORY NO.: 9999999
 PROFILE NO.: 2 SAMPLE TYPE: SCALP
 PATIENT: AGE: 9 SEX: F METABOLIC TYPE: SLOW 1
 REQUESTED BY: INTERCLINICAL ACCOUNT NO.: 2216 DATE: 01/09/2021



*N/A: Below Calibration Limit; Value Given to Calibration Limit
 *OND: Sample Size Was Inadequate For Analysis.
 *N/A: Currently Not Available
 Ideal Levels And Interpretation Have Been Based On Hair Samples Obtained From The Mid-Frontal To The Occipital Region Of The Scalp.
 Laboratory Analysis Provided by Trace Elements, Inc. Dallas, Texas USA an H.M.S. Licensed Clinical Laboratory. No. 45 00481787

1/09/2021
 CURRENT TEST RESULTS
 1/05/2021

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RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	675.00	550.00	263/1
Cr/V	14.00	10.00	8/1
Cu/Mo	7800.00	17450.00	356/1
Fe/Co	1700.00	400.00	615/1
K/Cu	3000.00	250.00	6350/1
K/Li	3000.00	1000.00	6350/1
Mg/B	N/A	N/A	21/1
Si/Cu	316.09	122.29	2668/1
Se/Tl	400.00	200.00	370/1
Se/Sn	4.00	2.00	3.2/1
Zn/Sn	1500.00	1600.00	624/1

MADDIE



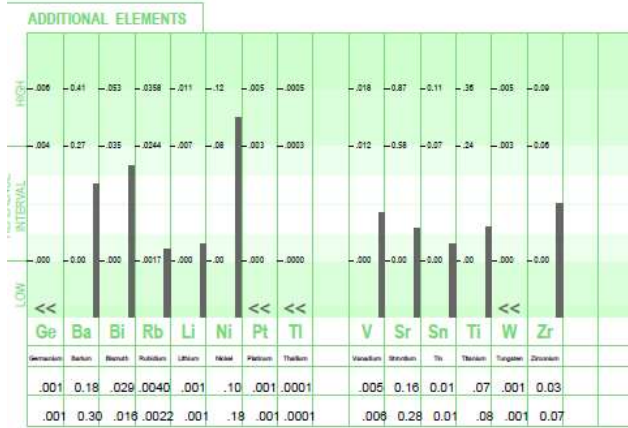
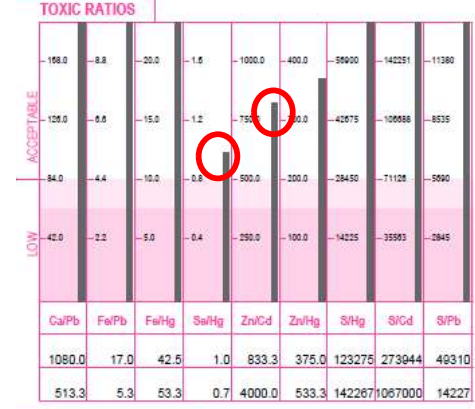
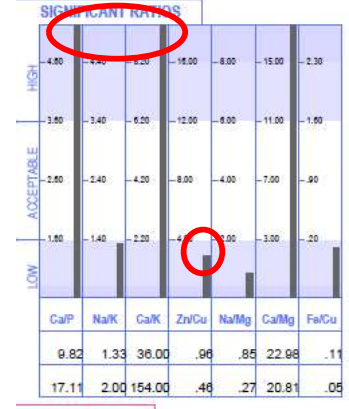
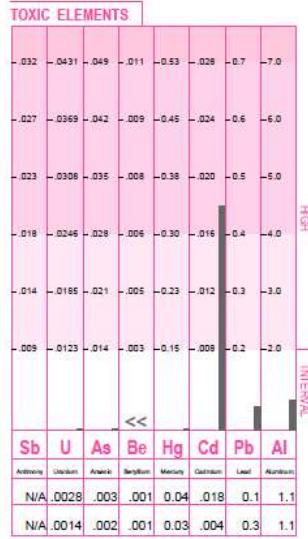
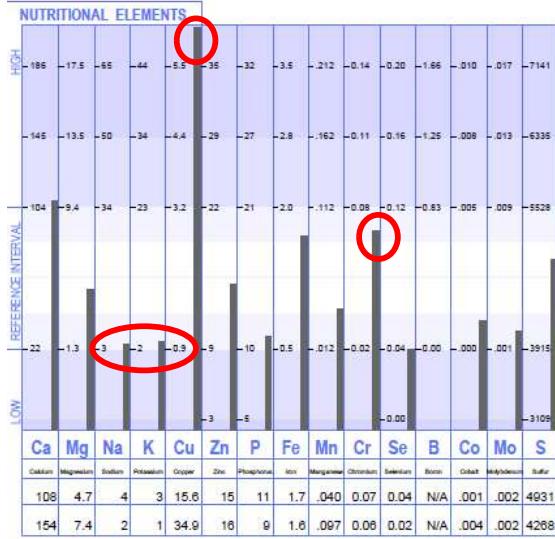
Zn & Molybdenum
 Vit C
Dunaliella Salina
 (Nutrient rich
 which offers
 protection & gentle
 detox)

Remember: Low & slow especially with children. Support nutritional elements – use Molybdenum & Zinc to antagonise Cu. Mother very happy with progress.

Nice to show Maddie & mum the changes in the chart - Gamification

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LABORATORY NO.: 9999999
 PROFILE NO.: 2 SAMPLE TYPE: SCALP
 PATIENT: AGE: 9 SEX: F METABOLIC TYPE: SLOW 1
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 1/09/2021
 CURRENT TEST RESULTS
 1/05/2021

ADDITIONAL RATIOS

RATIO	CALCULATED VALUE		EXPECTED
	Current	Previous	
Ca/Sr	675.00	550.00	263/1
Cu/V	14.00	10.00	8/1
Cu/Mo	7800.00	17450.00	356/1
Fe/Co	1700.00	400.00	615/1
K/Cu	3000.00	250.00	6350/1
K/Li	3000.00	1000.00	6350/1
Mg/B	N/A	N/A	21/1
Si/Cu	316.09	122.29	2668/1
Se/Tl	400.00	200.00	370/1
Se/Sn	4.00	2.00	3.2/1
Zn/Sn	1500.00	1600.00	624/1

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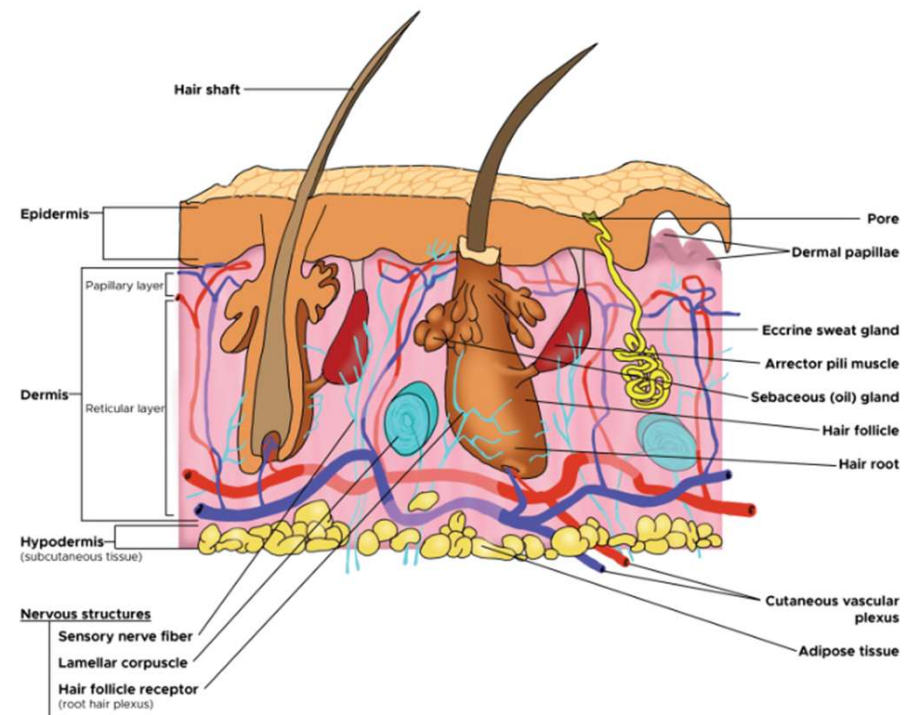
3. Why Hair?

Hair Growth

Formed in the dermis from a cluster of matrix cells.

During the growth phase, metabolic activity is greatly increased, exposing the hair to the internal metabolic environment including:

- ▶ extracellular fluids,
- ▶ circulating blood and
- ▶ lymph.



Pathology Options - Minerals

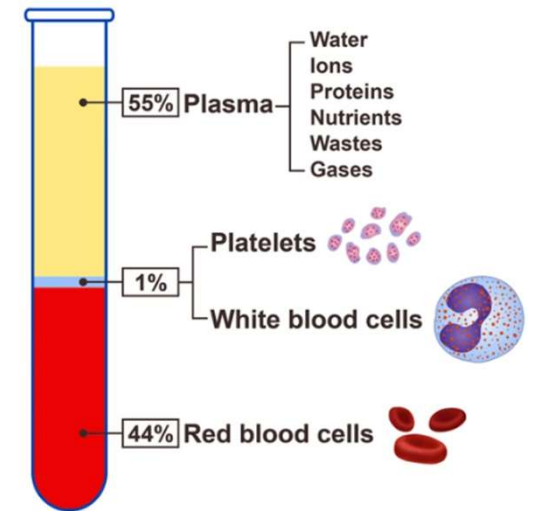
	ADVANTAGES	DISADVANTAGES
Whole Blood	Widely recognised	May not reflect tissue levels
Red Blood Cell	Intracellular levels	Measures only 1 cell type
Urine	Reveals losses	Shows only losses
Hair	Intracellular, Long term averages	Less well recognised

Blood Testing

Blood analysis for minerals in the body is a good indicator of the transport of minerals to and from the storage areas of the body

- ▶ Minerals fluctuate continuously
- ▶ Excesses often undetected (deposited in tissue)
- ▶ Toxic metals not shown after 7 – 40 days (deposited in tissue)
- ▶ Fluctuation of minerals due to acute/chronic conditions eg infection or inflammation
- ▶ Mineral storage/Homeostasis to maintain the level in blood eg Calcium

Components of Blood



Red Blood Cells - Erythrocytes

- No Nucleus, ribosomes...
- No Mitochondria
- Survive approximately 120 days
- Not representative of mineral storage or balances
- Not able to assess many minerals

Eg Manganese - located largely in the mitochondria of the cells affecting structure and function of mitochondria, responsible for activation of mitochondrial superoxide dismutase, and also activates enzymes associated with fatty acid metabolism and protein synthesis, which are highly important for normal cellular function!



Urine Sample

- ▶ Does not reflect body storage
- ▶ Gives indication as to what is being excreted but not why
- ▶ Even urine challenge tests need to be used with care due to increase in environmental toxins & does not accurately show burden eg. Sushi 2 days before
- ▶ Some of the more common sources of contaminants include: solvents, solvent and sample bottles, technicians and poor laboratory technique. Even the air can contaminate. It's impossible to eliminate all sources of contamination, but you can reduce the contribution that each source makes.
- ▶ If the urine is not collected in a sterile manner the urine sample may be 'contaminated' by bacteria that originate from the skin or genital area, and not from the urinary tract. This is often described by the clinical laboratory as 'mixed growth bacteria'.

Useful to assess mineral level excreted at a particular time.



Why use HTMA in your clinic?

- ✓ Hair specimens can be collected more quickly and easily than blood, urine or any other tissue, using a non-invasive method.
- ✓ Hair Analysis is more cost effective than mineral testing through other means
- ✓ Unlike blood, hair is less susceptible to the homeostat mechanisms that quickly affect trace element levels.
- ✓ Long term deviations of mineral retention or losses are more easily detected in hair than blood
- ✓ Concentrations of most elements in hair are significantly higher (often 300 -700 times) than found in the blood and other tissues
- ✓ Hair provides a record of past and present trace element levels ie. biological activity
- ✓ Hair is invaluable in the assessment of toxic metal levels.



THANKS!

Any questions?

You can find me at

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- ▶ education@interclinical.com.au
- ▶ +61 2 9693 2888