



STRESS, MAGNESIUM AND RELATIONSHIPS

Biochemical Basis of Stress: 4A's, 4C's

Naomi Brand and Adina Lebowitz
September 8, 2024

WEBINAR SCHEDULE 2024

- **Sunday July 28 – Overcoming Stress & Burnout** - Intro
- **Sunday Sept 8 – Biochemical Basis of Relationships** – more detailed analysis of some HTMA profiles and how mineral balance affects relationships
- **Sunday Oct 6 – Letting Go of the Inner Critic** (the Judge!) – Live your best life and thrive, especially with the stress of the holidays, keep it simple, don't “judge” that your family get together isn't a Hallmark holiday. Healthy options for your holiday table.
- **Sunday Nov 10 - The Copper/Zinc Connection** – anxiety, hormones, boosting your own immunity through the winter, trusting the process that your body can heal itself
- Contact Naomi if you'd like to order a HTMA kit before our next session. Email: mithermography@gmail.com

WHAT IS STRESS OVERWHELM?

We're all familiar with stress in our every day lives. What is stress overwhelm?

An extreme state of “fight or flight” leading to:

- Loss of behavioral or emotional control
- Severe anxiety, panic
- Explosive anger, rage, or violence
- It's very hard to be in a relationship with a person who is overwhelmed by STRESS and ANXIETY.

RISK FACTORS FOR MAGNESIUM DEFICIENCY

STRESS can deplete magnesium. Mg deficiency undermines a person's ability to regulate the stress response. More stress further decreases magnesium (=Mg "burn rate"). This becomes a vicious cycle leading to stress overwhelm.

Some common risk factors for magnesium deficiency are:

- Life stresses – family, work, school
- Intense emotions: Anxiety, depression, anger, fear
- Memory and concentration problems such as ADD/ADHD
- Blood sugar problems – diabetes, hypoglycemia
- Relationship problems
- Addictions, alcoholism, abuse, trauma

*Mildred Seelig, MD – Magnesium and the Stress Response

MAGNESIUM DEFICIENCY AND A HIGH Ca/Mg RATIO IN HTMA

Hair Tissue Mineral Analysis (HTMA) is used to measure minerals as indicators of a person's overall health

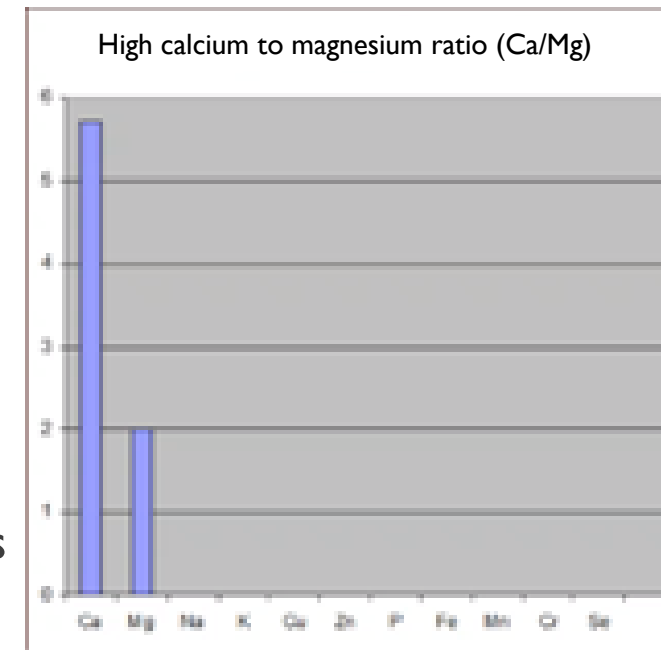
Some of the minerals that are measured are calcium, magnesium, sodium, potassium

- Calcium (Ca) **contracts** muscles
- Magnesium (Mg) **relaxes** muscles

With a high Ca/Mg ratio people may experience tight muscles, muscle spasms, heart palpitations & problems regulating blood sugar

Inflammation occurs in our bodies when we are stressed: plaque builds up in arteries, stones form in the kidneys, etc.

Even seemingly healthy people, like runners and other athletes, are at high risk of sudden heart attack if they are deficient in Mg.

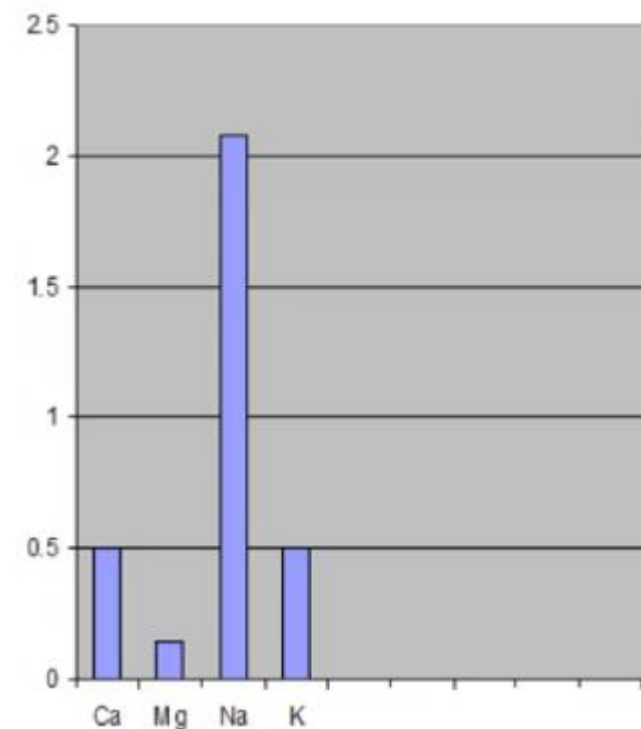


THE STRESS RESPONSE – HANS SELYE, MD

- Survival mechanism / reflex response
- High Na/K ratio – extreme stress
- High Ca/Mg ratio creates a calcium “shell” leading to diminished awareness, poor judgment
- Low tolerance for frustration, easily triggered, loss of emotional control which can manifest as fear, anxiety, anger, rage, violence
- Mg is Nature’s CALMING Mineral
- Mg regulates ‘fight or flight’, improves brain function

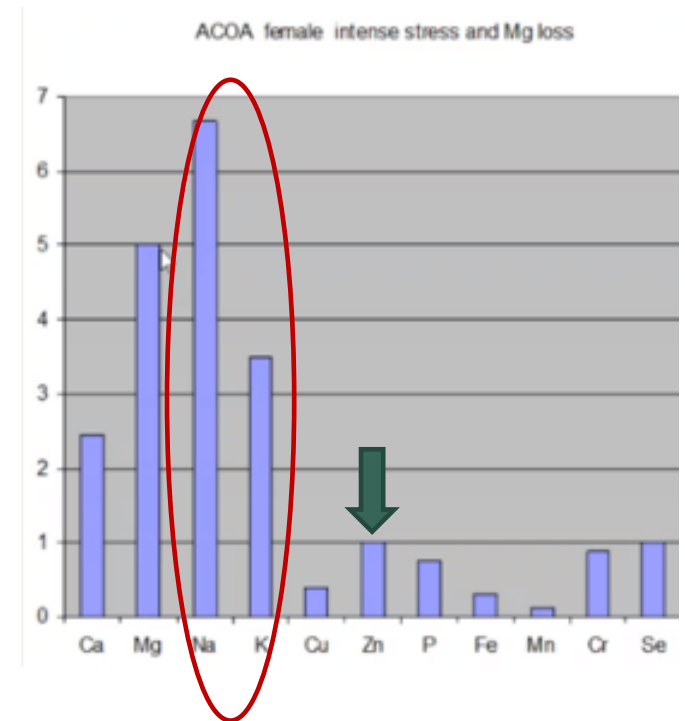
*Note: Ideal values in HTMA charts are normalized to 1.0

Fast Metabolizer under Stress with an Acute Magnesium Deficiency



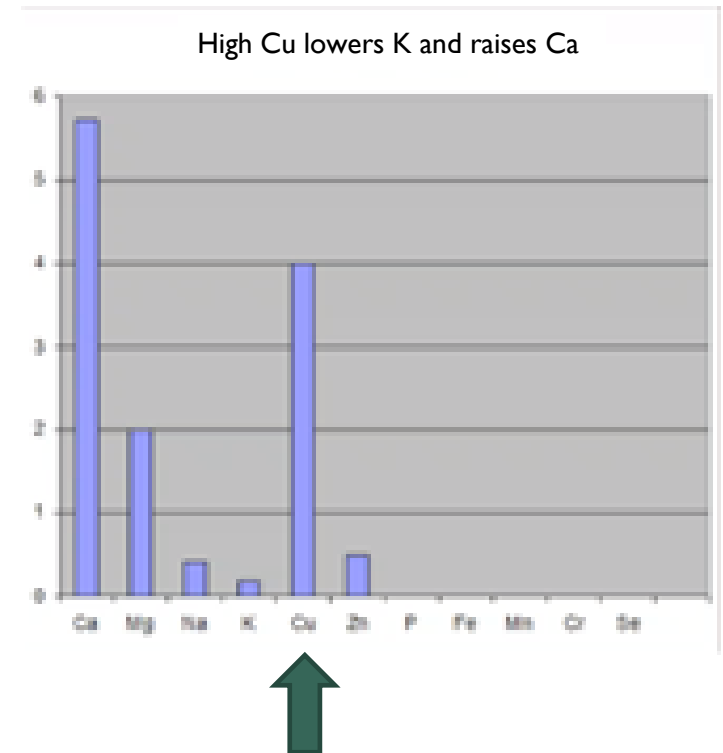
INTENSE STRESS and Mg LOSS FROM CELLS

- Under intense stress there is a high sodium (Na) to potassium (K) ratio.
- Mg is lost from the cells where it's needed for ATP to produce energy
- This loss is induced by STRESS
- Low Ca/Mg ratio is actually an “excretion” ratio showing Mg being dumped from the cells
- Zn is needed in order to maintain Mg and K in the cells, but Zn is also lost under stress



RELATIVE MAGNESIUM DEFICIENCY & COPPER TOXICITY

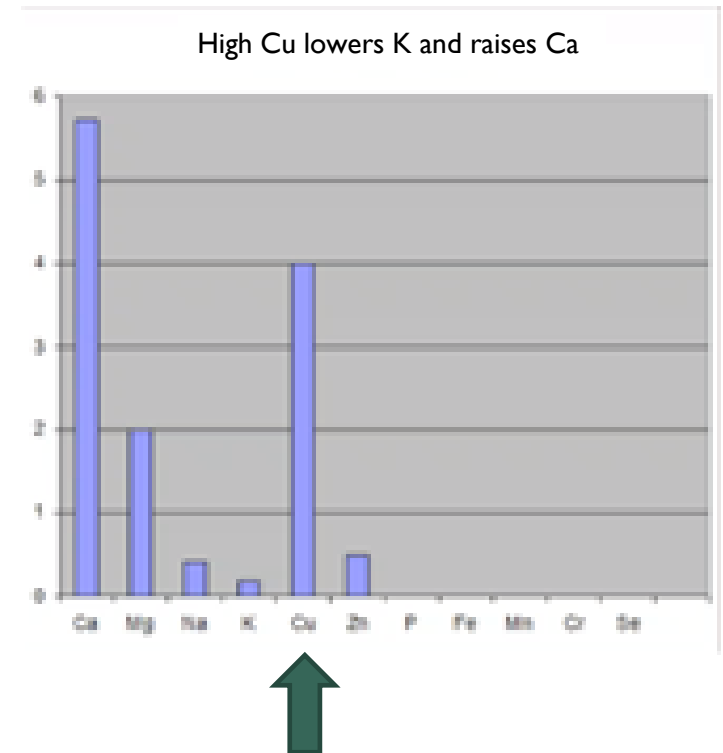
- In this profile there is also a high Ca/Mg ratio, a high copper (Cu) and low zinc (Zn)
- Stress depletes Zn which can exacerbate copper toxicity
- High Cu lowers K and raises Ca – intensifying the stress response which may be exhibited as panic attacks, high anxiety, free floating anxiety, interrupted sleep or insomnia



For more info: <https://coppertoxic.com/>

MORE ABOUT COPPER TOXICITY

- Cu is related to Estrogen, Zn is related to Progesterone.
- When Cu & Zn are out of balance this can create hormone imbalances (sometimes referred to as 'estrogen dominance')
- Mind races, but body is exhausted – slow thyroid, weak adrenals, low energy, and possibly depression and anxiety
- Anti-depressants (and other SSRI's) raise sodium boosting adrenal function but also intensify the stress response (Na/K ratio) making these problems worse rather than better



For more info: <https://coppertoxic.com/>

SYMPTOMS RELATED TO COPPER TOXICITY

- 1. PMS
- 2. Fatigue & exhaustion
- 3. Allergies
- 4. Mind is in a fog
- 5. Headaches, migraines
- 6. Mood swings
- 7. Supersensitive, weepy
- 8. Cold hands, and/or feet
- 9. Depression
- 10. Dry skin
- 11. Chocolate cravings
- 12. Feeling of loss of control
- 13. Paranoia
- 14. Despair, suicidal feelings, hopelessness
- 15. Arthritis, calcium spurs
- 16. Constipation
- 17. Racing heart, pounding heart
- 18. Adverse reaction to vitamins & minerals
- 19. Problems with concentration and memory
- 20. Short attention span, "spaciness"
- 21. Eating disorders: anorexia, bulimia, overeating
- 22. Panic attacks, high anxiety, free floating anxiety
- 23. Yeast infections (*candida*)
- 24. Aching muscles or muscle cramps
- 25. Hypoglycemia
- 26. Mind races -- insomnia, interrupted sleep
- 27. Cysts
- 28. Mononucleosis, viral infection
- 29. Low blood pressure
- 30. Obsessive thoughts
- 31. Hypothyroid (slow thyroid)

WHAT HAPPENS IN A RELATIONSHIP UNDER EXTREME STRESS

Mind racing, body exhausted, intense anxiety, easily triggered, intense stress response, angry outbursts, extreme rage

Did you know there is a biochemical basis for what's going on?

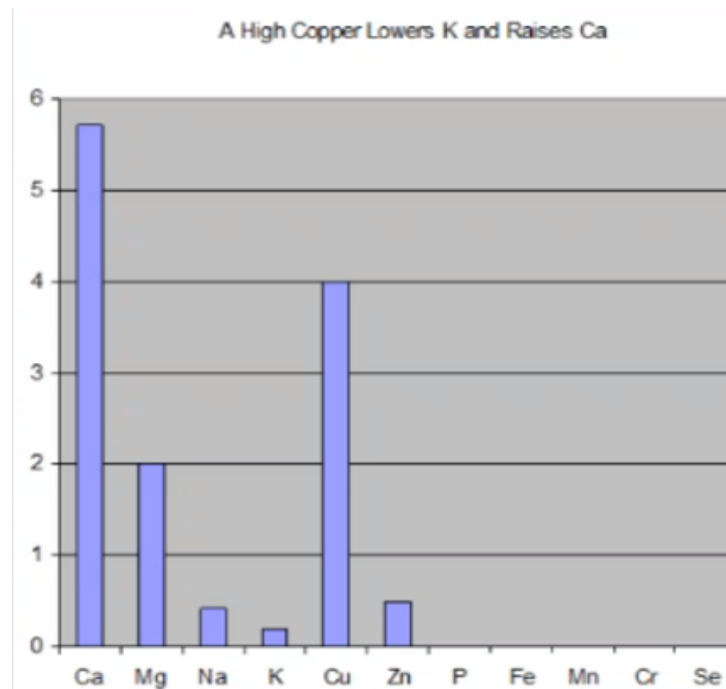
More Mg burn and higher Ca/Mg ratio.

4 C's calm, cool, charming, convincing (*calcium shell)

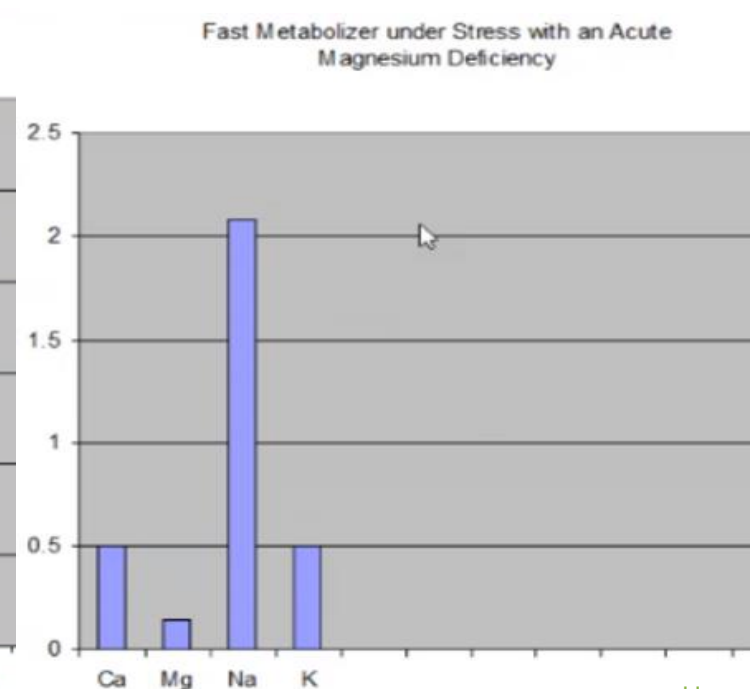
The higher Cu goes, the further K falls exacerbating the Na/K stress ratio

4 A's angry, agitated, anxious, afraid

Typical female stress pattern

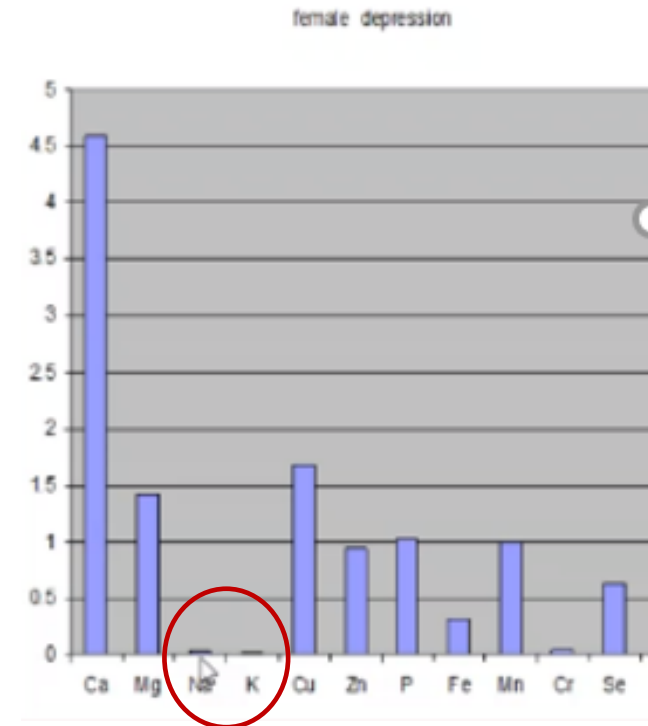


Typical male stress pattern



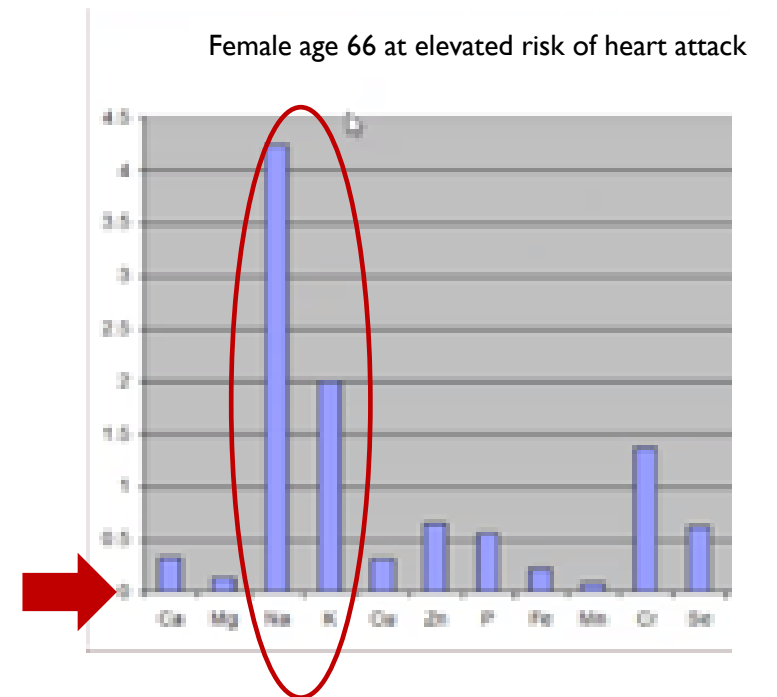
ADRENAL BURNOUT UNDER EXTREME STRESS

- High Ca/Mg
- Extremely low sodium (Na) and potassium (K)
- Very low blood pressure, light-headedness, dizziness
- Mg is needed but also Adrenal support
- Mg with Adrenal complex + K , Zn, Mn, Vit A, Vit C to reduce Cu load.
- Can't just give Mg because it will further lower Na (which is already completely depleted here).
- Taking calcium and Vitamin D with this mineral pattern can be a HEALTH DISASTER further **calcifying** organs and tissues and arteries.



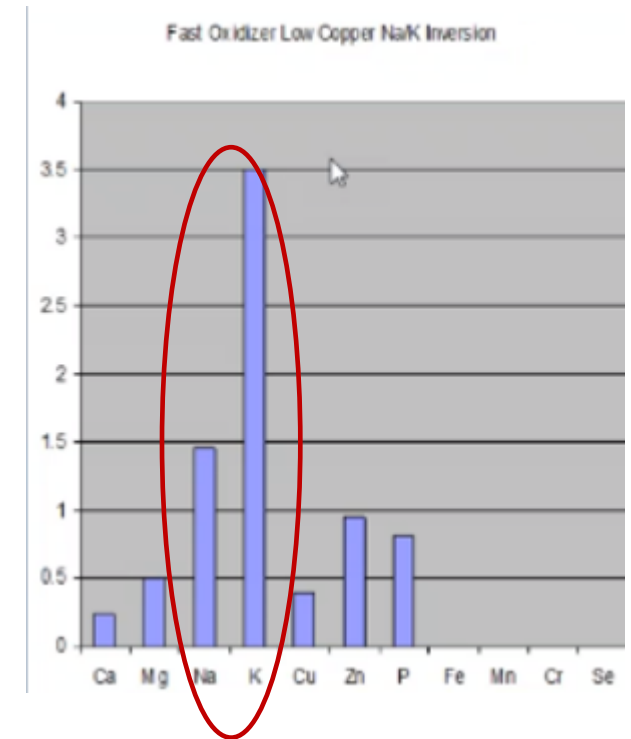
EXTREME ABSOLUTE AND RELATIVE Mg DEFICIENCY

- Very high risk profile – extreme stress could trigger a heart attack
- Sky high Na/K stress ratio
- Extremely low Ca, Extremely low Mg



ADHD PATTERN WITH Na/K INVERSION – DR RICK MALTER

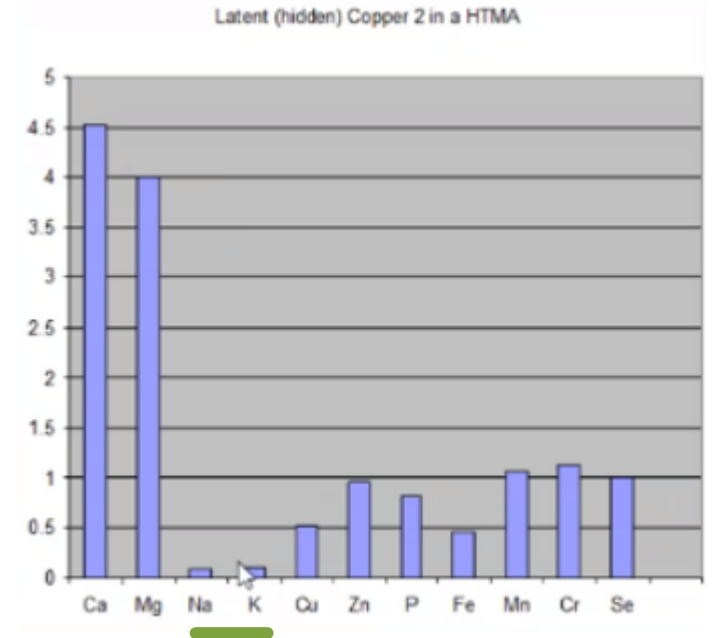
- Very high potassium (K) level and low Na shows a true Na/K inversion
- Hyperactive, impulsive, easily distracted
- Increased risk for poor sugar regulation (more sugar, more hyper)
- Very low absolute copper (Cu) affects immune system (prone to things like ear infections, can't seem to get off the antibiotic 'roller coaster' which destroys gut health)
- **Protein catabolism** (breakdown of protein for energy rather than using glucose or fat) putting additional stress on the kidneys
- ADHD medications (stimulants) further deplete magnesium and intensify the stress response



For more info: <https://malterinstitute.org/>

CHRONIC FATIGUE

- High calcium (Ca) and very low sodium (Na) & potassium (K)
- Chronic fatigue
- Lacks enough hydrochloric acid for proper digestion (calcifying the tissues, and leading to premature aging)
- It is suggested to drink WATER between meals, not during meals as it dilutes stomach acid interfering with proper digestion
- A low copper (Cu) may show in a slow metabolic type however there may be HIDDEN Cu stored in the brain or liver (where it doesn't belong)



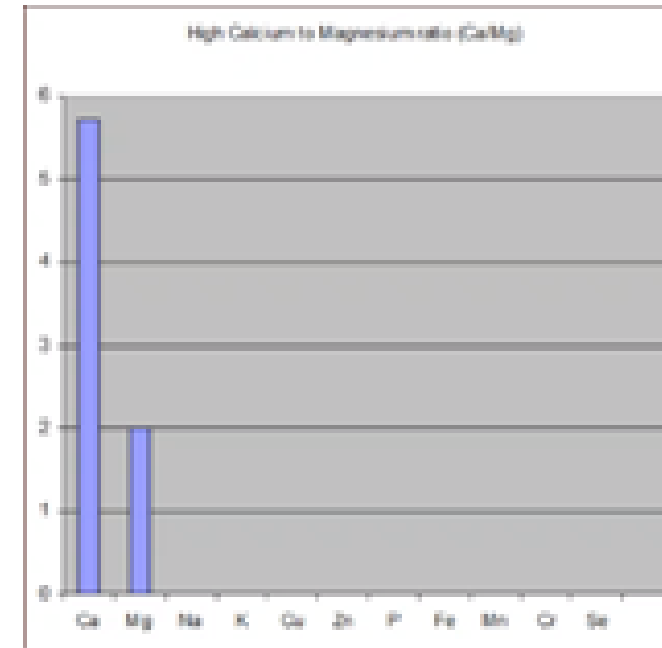
ADDICTIONS AND YOUR HEALTH

Do you deal with stress by eating sweets or drinking alcohol?

Ca/Mg is the blood sugar ratio.

Unstable blood sugar levels fuel addictive cravings for:

- Sugar
- Carbs
- Alcohol
- Adrenaline / excitement

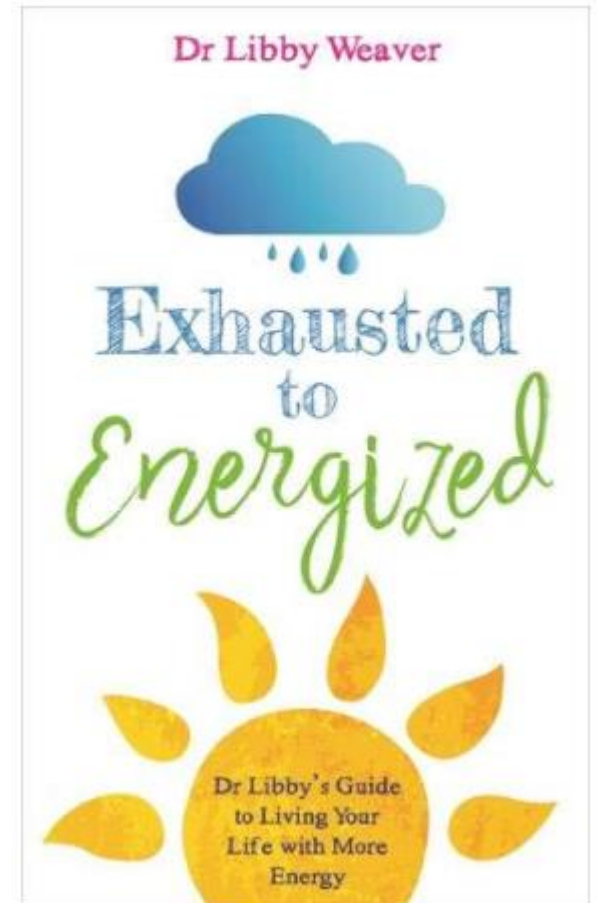


These deplete magnesium, diminish awareness of feelings, impair judgment and decision-making

DR LIBBY WEAVER - LOVE YOUR LIVER

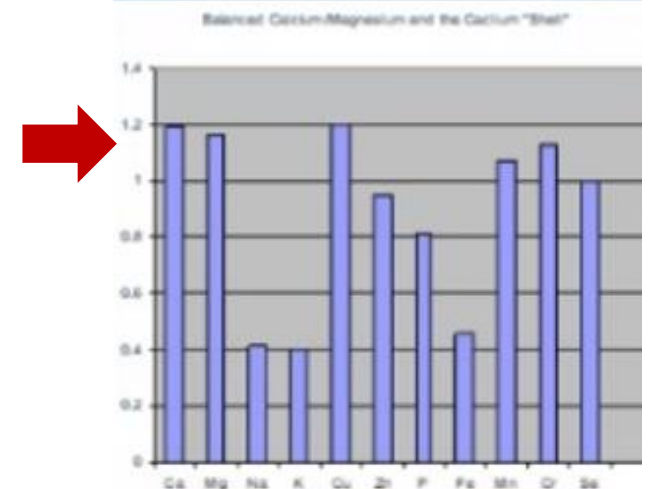
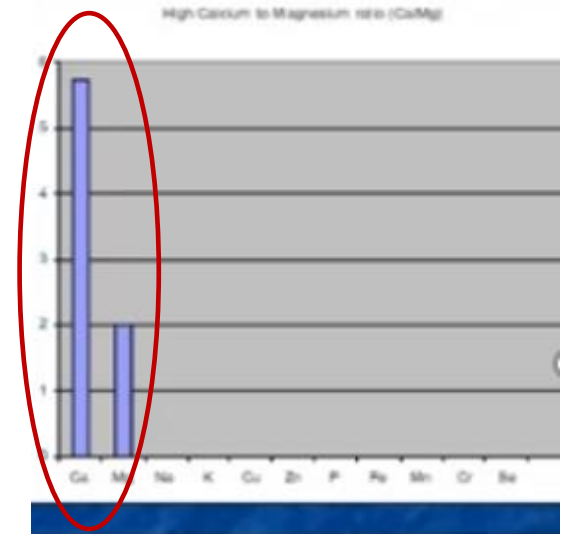
- Alcohol is a liver loader – The liver will process this FIRST before handling cholesterol, burning fat, etc.
- Excess alcohol messes with liver detox, digestion, nutrient absorption, increases body fat, interferes with hormones, disrupts sleep, and can lead to relationship problems
- Plant based diets support liver detox
- If you drink frequently, strive for ‘Two Alcohol Free Days’ per week to give your liver a break
- If you have a family history of cancer – there is NO safe level of alcohol.
- Life is precious. **YOU** are precious. Treat yourself accordingly.

For more info: <https://www.drlibby.com>



BETTER BALANCE

- There are natural ways to bring a person's body back into better mineral balance and restore health.
- Mg, K, Zn, phosphorus (P), and Vitamin A help to break up the calcium shell and re-balance Ca/Mg.
- Ca/Mg is the blood sugar ratio (also addictions and co-dependency)
- When the Ca shell breaks up, a flood of feelings maybe be released
- It's important to have emotional support during this time
- This “flood of feelings” that had been suppressed is only temporary but can be intense

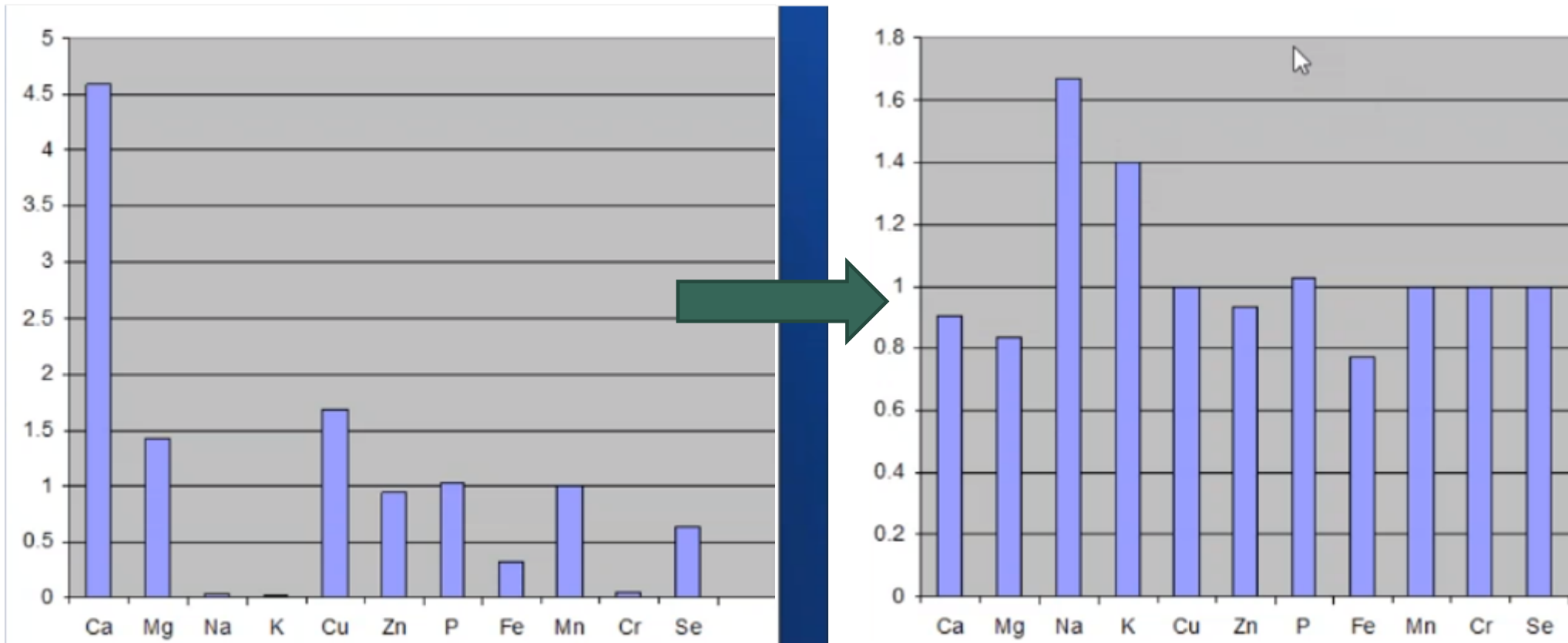


HEALTHY LIFESTYLE PRACTICES

- Minerals are the “spark plugs of life” (Henry Schroeder, MD)
- With balanced minerals, we greatly enhance our ability to live a healthy, energetic, loving and satisfying life
- Mg is needed to combine with ATP to produce optimal energy in the mitochondria of the cells.
- Without sufficient Mg, the body accumulates toxins and acid residues, degenerates rapidly, and ages prematurely
- We can eat less processed “junk” food, and instead focus on increasing nutrient density
- More plant-based products – green veggies and healthy fats

USING HTMA TO SHIFT TO BETTER BALANCE AND ENERGY

Rebalance a person's minerals to return to health, energy, emotional control, improved metabolic functioning



IDEAL RATIOS FOR HEALTH

- $\text{Ca/P} = 2.6$ (metabolic type – fast (< 2.6) or slow (> 2.6))
- $\text{Na/K} = 2.4$ (stress ratio – higher Na shows more stress)
- $\text{Ca/K} = 4.2$ (thyroid ratio – high Ca, the slower the thyroid)
- $\text{Na/Mg} = 4.0$ (adrenal ratio – lower Mg, more adrenal burnout)
- $\text{Zn/Cu} = 8.0$ (women's hormone ratio – higher Cu, estrogen dominance, copper toxicity. Need Zn for good ratio of progesterone to estrogen)
- $\text{Ca/Mg} = 7.0$ (blood sugar ratio – higher ratio, more blood sugar regulation problems)
- $\text{Fe/Cu} = 0.9$ (infection ratio - high may indicate **bacterial** infection, low may indicate **viral** infection)
- Relationship between stress and the immune system
 - High stress ratio or high adrenal ratio **SUPPRESSES** the immune system (thymus gland)

RESTORE ENERGY AND VITALITY WITH MAGNESIUM

- **Magnesium** can restore energy and vitality (so eat your greens!!!)
- Mg promotes calcium deposition in the bones where it belongs (and NOT in the kidneys or arteries!) Particularly important for those at risk of osteoporosis.
- **Excess calcium** blocks magnesium absorption and leads to inflammation (causing plaque to build up in the arteries, stones to form in the kidneys, dulling awareness to feelings, reducing energy)
- Caffeine (especially in strong coffee) raises Na/K stress ratio and interferes with calcium uptake to build strong bones
 - Try green tea (or herbal) for less stress and better calcium absorption
 - Also soak feet in lavender Epsom salts (MgSO₄) for relaxation
<https://www.healthline.com/nutrition/epsom-salt-benefits-uses#what-it-is>



MAGNESIUM and CARDIOVASCULAR FUNCTION

- Magnesium reduces the intensity of stress (nature's calming mineral)
- Mg is vital for heart rhythm regulation and cardiovascular health
- Helps regulate insulin release and stabilize blood sugar
- Relaxation through prayer, yoga, meditation, slow deep breathing are also **great for heart health!**



SO WHAT DOES THIS MEAN FOR IMPROVING HEALTH?

- Mineral balancing can restore a person's energy and vitality
- Emotional health and physical health are interrelated
- Find a calm respite from the craziness of life
- Less anxious -> Better emotional control, improved decision-making
- Reduce intensity of stress -> Better heart health, improved overall health
- More positive relationships at home, at work, with our kids, and with our children's other parent

ADDITIONAL REFERENCES

- Hans Selye, MD, *The Stress of Life*, 1956
- Mildred Seelig, MD wrote about *Stress, Magnesium, and the Heart*, 1982
- Carl Pfeiffer, MD, PhD authored *Mental and Elemental Nutrients*, 1975, see chapter on Copper Toxicity
- Guy Abraham, MD - Magnesium Deficiency and Calcium Excess, 1990
- Abram Hoffer, MD, PhD psychiatrist, editor-in-chief *Journal of Orthomolecular Medicine*, 1998
- Libby Weaver, PhD authored *Exhausted to Energized*, 2018
- Amy J.L. Baker, PhD and Paul L. Fine, LCSW, 2014
 - *Co-parenting with a Toxic Ex*
 - *Surviving Parental Alienation: A Journey of Hope & Healing*

CONCLUSION

Lifestyle choices can improve the mind/body system by strengthening the immune system, healing the cardiovascular system, improving brain function, and managing the stress response.

Despite the challenges we have encountered, we can greatly enhance our chances of living healthy, energetic, loving, and satisfying lives.

Naomi Malter Brand

Thermography & Hair Tissue Mineral Analysis

Phoenix, Arizona

mithermography@gmail.com

817-683-3032

Websites:

NaomiBrand.com

RedoxHealthySelf.com

Adina Lebowitz, MA

Elan Health Twin Cities LLC

Minneapolis / St Paul, Minnesota

adina@elanhealthtc.org

612-499-8418

<https://www.elanhealthtc.org/coaching>