



**Do We Need Supplements?
An Adaptive Approach to Supplementation.**

Supplements are Useless

- “Vitamins are useful for treating specific deficiencies but most people who use multivitamins just have very expensive urine” (Michael Gannon, Australian Medical Association)
- “Fish oil supplements may INCREASE risk of heart disease and stroke if they're taken by healthy adults, study shows”. (The Daily Mail, 21/05/24)
- ‘Enough Is Enough: Stop Wasting Money on Vitamin and Mineral Supplements’ (The Annals of Internal Medicine, 2013)
- “Probiotics labelled 'quite useless.’ (BBC, 06/09/2018)

Modern Requirements

- **Chronic stress** depletes nutrient and exacerbates deficiencies (Gonzalez, 2014) by affecting micronutrient absorption, storage, & utilisation, as well as inflammation & oxidative stress. (Lopresti, 2020)
- **Inadequate Nutrient Availability:**
 - **Magnesium** – In Palaeolithic times, it is estimated that we consumed about 600mg of magnesium. The current average is between 200-300mg/day. *“Most people need an additional 300 mg of magnesium per day in order to lower their risk of developing numerous chronic diseases”.* (DiNicolantonio, 2017)
 - **Vitamin D** – The average blood levels of vitamin D in hunter-gatherer populations may be around 115 nmol/l. A level between 58 to 171 nmol/l has been suggested to be the natural concentration for humans. (Luxwolda, 2012)
- **High Toxic Load** - In the last 50 years alone, an estimated 5 million new chemicals have been created, 75,000 of which are in daily use and under 10% have been toxicity tested.
- **Dysbiosis & Antibiotic Use** - A growing body of work has begun to conceptualise the human microbiome as an evolved trait that is currently “mismatched” to its environment, often with serious health implications. (Carmody, 2021) It seems that certain ‘benefits’ from our microbiota may be lost or out of balance.
- **What’s next?** The Sainsbury's "Future of Food" report predicts: A quarter of all Brits will be vegetarian by 2025. "Lab-grown" aisles where people can pick up cultured meats or kits to grow meat at home. Hydroponic plants, cultivated without soil and grown in disused warehouses or even underground. Food changes are coming, and coming fast. **How will our bodies, our microbiome and our genes, adapt to such dramatic shifts?**

Evolutionary Mismatch

- We have recently learnt that the genes associated with higher risk of multiple sclerosis (MS,) were brought into North-West Europe 5,000 years ago by sheep and cattle herders migrating from Russia. These genetic variants protected from catching infections from their flocks...but also increased the risk of developing MS.
 - *“MS is the result of a genetic adaptation to certain environmental conditions that occurred back in our prehistory.”* (Barrie, 2024)
- We have changed the world around us so much – both in terms of our environment and how we interact with it:
 - Global climate change
 - Increased levels and complexity of pollution
 - Ultra processed and GMO containing foods
 - Electromagnetic frequency radiation
 - Antibiotic resistance microbes
 - Contaminated air and water supplies
 - An increasingly isolated population where loneliness and social anxiety is the norm.
- A genetic code that is ill-matched to its environment spells trouble for the host. (Cregan-Reid, 2018)
- **A growing body of research suggests that most of our modern lifestyle diseases are due to a mismatch between our physiology and the incredibly complex multi-stressor, multi-toxic world we live in.** (Lea, 2023)

Unique Requirements




Genetics

- **Genetics** – We can't change genes. But we can alter adaptation in two ways: We can manipulate the environment (reduce the challenge we face) or we can use supplements to modulate the way the physiological system adapts to it (increase our potential to adapt).
 - Folate – homozygous SNPs in the *MTHFR C677T* gene reduces its activity by up to 70%, reducing the synthesis of methylfolate. (Frosst, 1997)
 - Choline - *PEMT* polymorphisms are associated with reduced phosphatidylcholine production and conditions such as non-alcoholic fatty liver disease (NAFLD). (Tan, 2016) PC production may be further reduced by low SAMe or oestrogen.
 - Glutathione production & activity are dependent on multiple genes e.g. *GSR*, *GPX*, *GSTM1*, *GSTP1* & *GSTT1* which are reliant on multiple cofactors such as vitamins B2, B3, B6, iron or selenium.




Environment

- **Environment** – Our genes dictate our potential strengths and weaknesses in terms of ability to adapt to our environment so we can create an environment that is better suited to our genes for better health adaptation.
 - Medication induced nutrient depletions.
 - Vegan/vegetarian diet – Depletions in vitamins B2, B3, B12, D, iodine, zinc, calcium, potassium, selenium. (Bakaloudi, 2020)
 - Psychological and situational stressors.
 - Biological factors – Nursery, school or hospital workers may have higher exposure to pathogens and therefore higher needs for immune-supporting nutrients.



Immunity

- **System Requirements** – The interaction between the genes and environment manifest in system adaptations/maladaptations.
 - Stress, inflammation, oxidative stress, blood glucose dysregulation etc.
 - Digestion - Stomach acid needed for absorption of iron. B12, vitamin C, calcium, magnesium, vitamin C. (Carabotti, 2021)
 - Weight – The higher the weight, the higher the need for micronutrients. E.g. Obese individuals may require up to 2-3 times higher doses of vitamin D.



Nervous

From Health Assessment to Protocol - Key Concepts

We need to be challenged too

Adaptation is about interfaces

It has adjustable thresholds

There is not one root cause

Causation is circular, not linear

What it is, is what it isn't

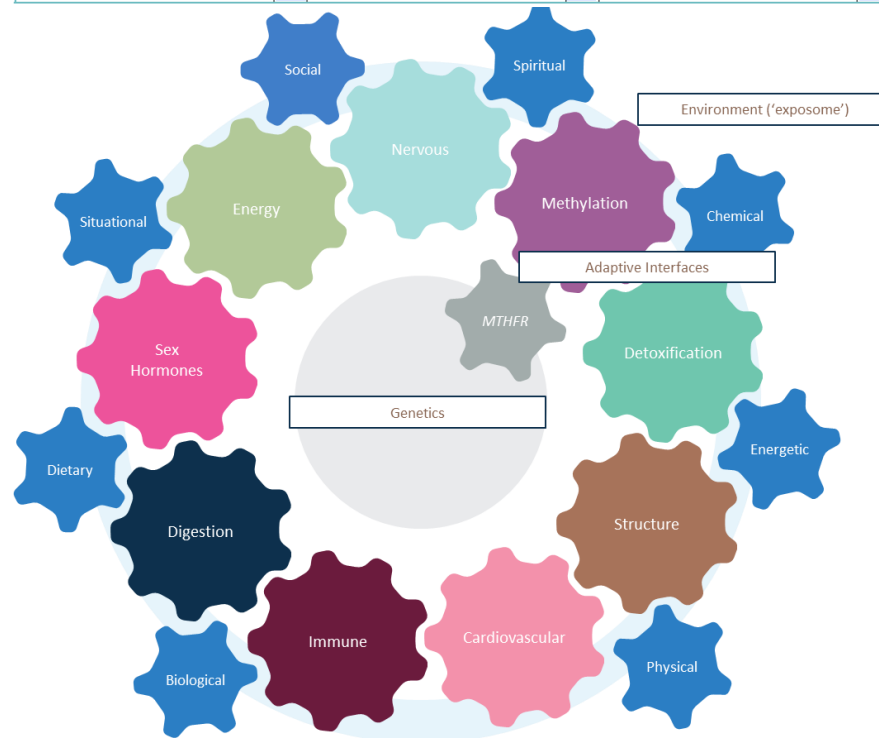
Environment is King

Balance is key

1. Gather Information & Consider Interactions

- Gather as much information as you can: basic client questionnaire, diet, lifestyle etc.
- Add genetics – family history or through testing.
- Add data – wearables, blood, urine etc..
- You can continue building this picture over time.
- Once you've got everything, put it in a diagram/picture – think about the gene – environment – system interactions.
- How is their environment interacting with their genes? Is there a fit?
- How are the systems affecting each other?
- Which interface are you going to support to prop up the rest of the systems?
- Think about the 80/20 rule. Be realistic & work with the client.

Nervous					
Thinking (Cognitive/Sensorimotor)	Please Tick	Stress (Wired)'Hyper-arousal'	Please Tick	Stress (Low Energy/Mood)'Hypo-arousal'	Please Tick
I am very forgetful, have difficulties with concentrating, reading, writing, listening, planning, or thinking. I feel fuzzy-headed, like I can't think straight ('brain fog').	✓	Sometimes I can be quite wired or hyperactive, especially later in the day.	✓	I feel tired, especially in the morning.	✓
People say my personality has changed.		I get stressed, anxious, irritable, or even angry, easily.	✓	I sometimes feel quite low – depressed or unmotivated.	✓
I don't have much of a social life or I'm less interested in people or activities I used to enjoy.	✓	I have difficulty sleeping – either falling asleep, staying asleep, or even insomnia. I sometimes or often use alcohol or sedatives to relax or sleep.		I drink coffee, take stimulants, or exercise to boost my energy.	✓
I have sensory issues – poor hearing, numbness, vision problems (blurring or greying patches not due to ageing).		I don't get outdoors much, spend a lot of time indoors under artificial light/ look at TVs or screens a lot, especially in the evening.	✓	I take drugs or medication to support my mood (e.g. anti-depressants).	
I'm clumsy, dropping things or bumping into things regularly.	✓	I am a bit of a perfectionist, addictive about things, or even obsessive compulsive.	✓	I'm overweight, especially around my middle.	
I eat foods containing MSG (monosodium glutamate) e.g. Chinese food, or foods containing aspartame (artificial sweetener) such as processed food and fizzy drinks, yoghurts etc.		I feel like I'm under a lot of stress and/or have experienced significant emotional trauma in my life (e.g. during childhood).	✓	I crave salty or spicy foods.	✓
Test from a doctor or practitioner show one/ some of: brain shrinkage, strokes/mini strokes, low dopamine, high homocysteine. Genetic tests may show APOE, MTHFR, or PCMT variants.	✓	Test from a doctor or practitioner show one/some of: high cortisol (especially later in the day), low or irregular heart rate variability, low magnesium and B6. Genetic tests may show MTHFR, COMT, or MAO variants.	✓	Test from a doctor or practitioner show one/some of: low cortisol/DHEA, vitamin B12, B6, folate, B5, C, magnesium, zinc. Genetic tests may show MTHFR, COMT, or MAO variants.	✓
Diagnosis or family history of one/some of: Alzheimer's, dementia, multiple sclerosis, motor neurone disease, Parkinson's, Huntington's, stroke/ TIA, autism, ADHD, learning difficulties, dyspraxia etc.		Diagnosis or family history of one/some of: OCD, hyperactivity, anxiety, manic depression, bipolar, insomnia, hyperthyroidism, PTSD etc.	✓	Diagnosis or family history of: depression, chronic fatigue syndrome.	✓



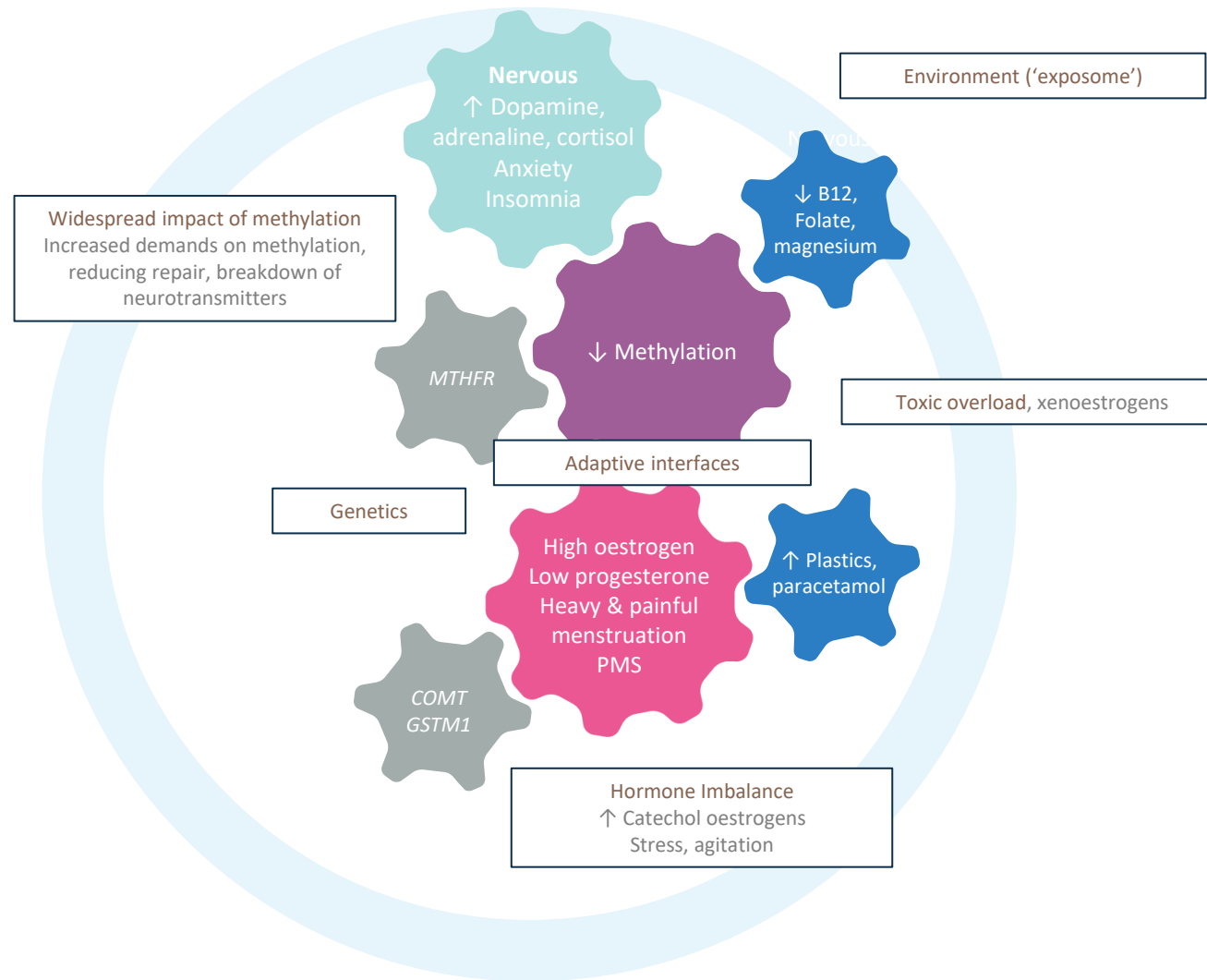
2. Foundation

- What is the foundation of your protocol?
- A good personalised and realistic diet is going to help provide cofactors, reduce some stressors and drains on multiple systems.
- In complex cases, with multiple nutrient insufficiencies, multiple environmental challenges and system maladaptations, a broad-spectrum supplement that will cover a lot of bases might be helpful.
- This could be a multnutrient or a probiotic, for example.
- A good, therapeutic multnutrient will support methylation (with methylfolate, methylcobalamin), blood glucose regulation (chromium, B vitamins, magnesium, manganese), detoxification (selenium, molybdenum, antioxidants), and more...
- A good probiotic is like a 'gardener' of our internal ecosystem – it 'removes' the pests, encourages other species to flourish, and does a general tidy up – reducing inflammation, toxic load, improving digestion & absorption...



3. Support the Genes

- Reduce the pressure on methylation & *COMT* – stress reduction; mindfulness, meditation.
- Gentle cofactor support for methylation – methylfolate & methylcobalamin in a liquid to start ‘low & slow’. Extra magnesium for *COMT*.
- Reduce toxic load; plastics, cosmetics & increase cruciferous veg, protein, flaxseed etc.



4. Environment is King

- Forget condition protocols. Think about which system is mostly under stress creating dysfunction in other areas.

Case Study Example:

- Daniel – 55 year old male with severe psoriasis since 15yrs. Patches can be very itchy, crack and bleed. On sertraline, perindopril and simvastatin, corticosteroid, dithranol cream, methotrexate.
- Questionnaire – chronic stress, has been working in construction, high gluten, diet low in folate & cruciferous vegetables, low serum folate & B12, high PAHs from coffee/fried foods, high inhalant toxins. Genetic SNPs: *COMT*, *NAT2*, *GSTM1*, *CYP1A2*, *UGT1A1* & *1A6* (LifeCode Gx Detoxification)
- Support – Focus on detoxification with a greens powder (Cleanse NutriPowder) & glutathione with cofactors, glucuronidation and acetylation support (Glutathione Complex).

The Power of A Nutrient Complex - Neuro Complex

An advanced nutrient complex to support nerve cell health, mood and cognition.

Use for memory problems, neurodegeneration, neurological damage, motor problems, studying/exams, autism, ADD/ADHD, stress (wired) and depression.



Health Is Adaptation

*I know I ask perfection of a quite imperfect world
And fool enough to think that's what I'll find.*

- Answers to health problems are not simple – they are multifactorial.
- We're never going to be perfect or live in a perfect world.
- However, if we can look at the whole picture, *reduce the environmental burden* with lifestyle suggestions...
- ...And improve our potential to adapt with *effective supplements*.

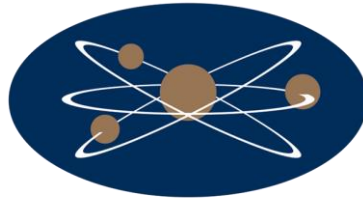
We can provide truly personalised solutions that optimise health.

Thank you!

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