BioTrace Ltd
38C Hannigan Drive

Saint Johns, Auckland 1072
Tél.:09 570 5923

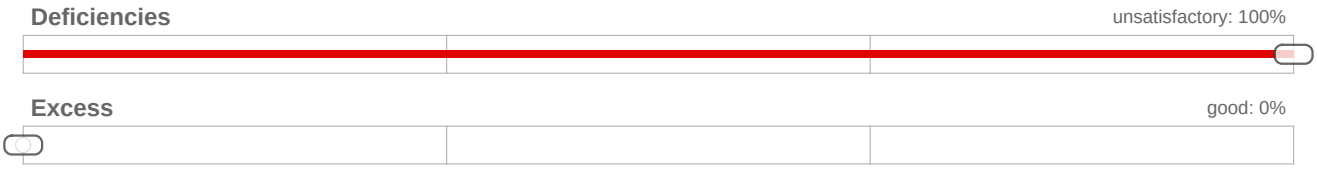
Patient: John Smith

Date: 2021/03/16
Male 56 years
Date of Birth: 1965/10/10
Blood group: O
Weight: 87 Kg
Size: 1m 90

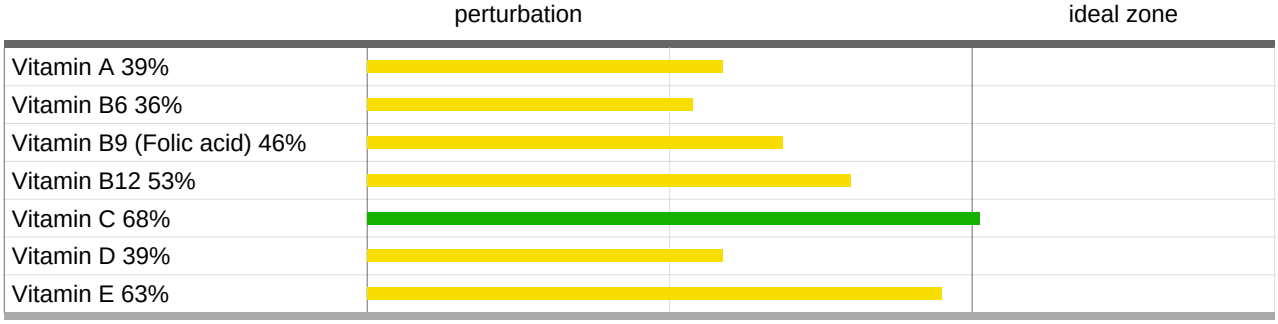
Mineral Test Report

	Result	Normal		Low-	Low	Normal	OK	Normal+	High	High+
Calcium (Ca)	**515.3**	279.0	598.0							
Magnesium (Mg)	**24.3**	30.5	75.7							
Phosphorus (P)	**124.4**	144.0	199.0							
Silicon (Si)	**9.4**	15.0	31.0							
Sodium (Na)	**45.5**	21.0	89.0							
Potassium (K)	**10.3**	9.0	39.0							
Copper (Cu)	**16.6**	11.0	28.0							
Zinc (Zn)	**122.8**	125.0	155.0							
Iron (Fe)	**9.0**	5.0	15.0							
Manganese (Mn)	**0.31**	0.31	0.75							
Chromium (Cr)	**0.70**	0.82	1.25							
Vanadium (V)	**0.022**	0.009	0.083							
Boron (B)	**2.47**	0.84	2.87							
Cobalt (Co)	**0.031**	0.025	0.045							
Molybdenum (Mo)	**0.041**	0.035	0.085							
Iodine (I)	**0.10**	0.32	0.59							
Lithium (Li)	**0.081**	0.052	0.120							
Germanium (Ge)	**0.022**	0.003	0.028							
Selenium (Se)	**0.60**	0.95	1.77							
Sulphur (S)	**51.2**	48.1	52.0							
Fluor (F)	**1.66**	0.41	1.75							

Mineral Balance



Vitamins



BioTrace Ltd
Unit 4 - 110 Mays Road

1061 Onehunga, Auckland
Tél.:09 570 5923

Patient: John Smith

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Heavy Metal Test Report

		Result	Normal	High -	High +	Excess
Aluminium	Al	**0.01262**				
Antimony	Sb	**0.00269**				
Silver	Ag	**0.01293**				
Arsenic	As	**0.00538**				
Barium	Ba	**0.00830**				
Beryllium	Be	**0.00617**				
Bismuth	Bi	**0.00944**				
Cadmium	Cd	**0.01149**				
Mercury	Hg	**0.01597**				
Nickel	Ni	**0.00415**				
Platinum	Pt	**0.00221**				
Lead	Pb	**0.00658**				
Thallium	Tl	**0.00201**				
Thorium	Th	**0.00124**				
Gadolinium	Gd	**0.00332**				

Heavy Metals Intoxication

Overall Intoxication — unsatisfactory: 80%

Blockage suspicion for heavy metals elimination; possibly from lack of sulfur conjugation. — good: 60%

Ratios

	Ratios	Normal		Low	OK	Haut	Deficiency	Excess
Ca/Mg	**21.18**	7.84	18.25				Mg	
Ca/P	**4.14**	1.64	4.15				P	
K/Na	**0.23**	0.45	0.75					
Cu/Zn	**0.13**	0.11	0.17				Zn	

Oxidative Stress

Oxidative Aggression — good: 33%

Oxidative Protection — acceptable: 40%

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Comments

Methodology: Spectrophotometry of palmar dermis
Comments:

Caution! These values are not for diagnostic purposes ; these are only an interprétation of corrélations between minerals & oligo-elements tested with OligoscanThese relationships have been widely documented throughout the scientific literature on micronutrients and ortho-molecular medicine.The Oligoscan test is only a functional element of balance in the body.

OligoScan Report

John Smith

18th March 2021

Mineral Deficiencies

Below are the minerals appearing deficient or low on John's OligoScan.

Magnesium (Mg)

Functions

- Mg is required for the activation and/or structure of more enzymes than any other mineral. Many Mg dependent enzymes cannot use a different mineral to replace Mg
- Regulation of cell membranes: permeability, muscle contraction, nerve impulse conduction and antagonism to Calcium (Ca)
- Required for bone formation
- *Detoxification*: required for optimal liver activity
- Metabolic: required for *energy production*, glucose and fat metabolism, and for protein synthesis
- Immune: Mg operates at several levels in immune mechanisms such as inflammatory reactions, allergies and boosting white blood cells

Deficiency: Mg is blocked by *Cadmium*, *Aluminium*, *Mercury* and *Fluoride* (*all appearing raised on John's OligoScan*) and is used up rapidly during times of stress as adrenaline keeps Mg suspended in the blood, increasing Mg loss.

Dietary Sources

Green leafy vegetables esp. spinach, kale, and silver beet, vegetables esp. broccoli, corn, and avocado, fruits (dried – apple, figs, apricots, dates, currants, raisins, sultanas, prunes; fresh – passion fruit, blackberry, raspberry, banana), nuts, seeds, tahini, whole-grains, dried seaweed, cocoa powder, and dark chocolate.

Recommended Mg Supplement: QRX Mg Bisglycinate

Phosphorus (P)

Functions

- Bone structure: 80-85% of P is located in the teeth and bones
- *Energy*/nervous/muscular: ATP and ADP for energy and muscle contraction
- Component of myelin sheath which covers nerve cells
- Cell membrane: as phospholipids
- Genetic reactions: in DNA and RNA
- Buffering agent to maintain osmotic pressure
- Digestive: regulates absorption of Calcium, and a variety of trace elements
- Immune: ATP for leukocytes
- *Detoxification*: in liver via ATP

Deficiency: P may be blocked by *Lead* or *Aluminium* (*both appearing raised on John's OligoScan*). Low P may also be an indicator for insufficient protein synthesis due to either low dietary protein or low digestive enzymes.

Dietary Sources

P is found in red meat, fish and shellfish, natural unsweetened yoghurt, eggs, fruit (dried – apricots, currants, dates, figs, sultanas, prunes; fresh – banana, all berries, peaches, plums, nectarines, grapes), legumes & beans, tofu, seeds (sunflower, sesame), tahini, and vegetables (mushrooms, sweet corn, sundried tomato, peas).

Recommended P Supplementation: PRL Greens helps balance P and Ca levels, as well as body pH.

Silicon (Si)

Functions

- The presence of Si is necessary for the biosynthesis of collagen, elastin and hyaluronic acid. Therefore, Si plays an important role in connective tissue health, specifically cartilage, bone, skin, hair, and nails
- Si is needed for the synthesis of all membranes in the body including the fascia, meninges, periosteum, and intestinal support membranes
- Si is important for the cerebellum, a part of the brain associated with maintaining balance in the body and mind
- A low Si state creates a situation where there is *insufficient storage for minerals*

Deficiency: Si is depleted by *Aluminium* and is required to help antagonise *Aluminium* out of cells.

Dietary Sources

Horsetail herb, whole-grains (oats, brown rice, barley, millet, corn, rye), flaxseeds, black tea, banana, raisins, vegetables (green beans, carrot, cucumber (skin), chickweed, alfalfa, artichoke, red beets, asparagus, potatoes, stems of green vegetables), and kelp.

Recommended Si Supplement: QRX Silica+

Zinc (Zn)

Functions

- Zn is the cofactor of more than 200 enzymatic reactions, such as *detoxification* and *antioxidant* activity, immune and digestive functions, and neurotransmitter and hormone synthesis. It is required for cellular respiration, cell division and in many metabolism processes of carbohydrates, proteins, and nucleic acids
- Zn is essential in several cell-duplication processes:
    - Fertility: participates in the formation of sperm
    - Growth: in the synthesis of growth hormone
    - Immunity: essential for the proper functioning of the immune system (thymus)
    - Anti-inflammatory: Zn is the main anti-inflammatory mineral in our body
    - Healing: role in the renewal of the skin, hair and nails
    - Insulin: Zn is required for insulin production and secretion therefore helping improve glucose uptake and blood sugar regulation
- Zn is generally deficient in soils and is heavily *antagonised by all toxic metals*.

Deficiency: Zinc antagonises *Mercury*. Mercury levels on the OligoScan may rise as they become mobilised/excreted with zinc supplementation. Symptoms that may arise from mobilising mercury are:

- Muscle tremors, muscle weakness, numbness and tingling in arms and legs
- Hyperactivity and inattention symptoms
- *Fatigue* or insomnia
- Neurological problems (memory loss, anxiety, depression, mood swings)
- Increased susceptibility to infection

Please refer to your practitioner if any of these symptoms arise from your treatment

Dietary Sources

Oysters are the food richest in Zn. It is also found in meat, fish and seafood, vegetables, legumes, whole grains, nuts and seeds, wheat germ, and egg yolk.

Recommended Zn Supplement: QRX MT+ (no added Copper)

Chromium (Cr)

Functions

- Cr is required for the body's production of GTF (glucose tolerance factor). This has a role in regulating the pancreatic hormones responsible for controlling blood glucose
- This GTF complex also affects lipid metabolism and reduces cholesterol
- Low cellular levels of bio-available Cr are associated with carbohydrate intolerance and fluctuations in insulin production and blood sugar levels that may contribute to weight gain, *energy imbalances*, sugar cravings, and mood disturbances

Deficiency: Magnesium, *Zinc* and Manganese are synergistic minerals for glucose metabolism. Low Cr may indicate low stomach acid (HCL). Sugars, starch, fruit, fruit juices and stress and the resultant cortisol and insulin secretion can deplete chromium.

Dietary Sources

Cr is in brewer's yeast, organic wholegrain cereals, seafood, oysters, liver, chicken, beef, potatoes, apples, bananas, spinach, butter and thyme. Refined foods and intensive farming reduces the presence of Cr in food. The consumption of sugar and refined flour tends to accelerate its decline.

Recommended Cr Supplement: QRX MT+ (no added Copper)

Iodine (I)

Functions

- Adequate amounts of **Iodine** are essential for thyroid function especially the synthesis of thyroid hormones. Thyroid hormones increase the resting or basal metabolic rate of the whole organism and have stimulatory effects on the heart, skeletal muscle, liver and kidney
- These hormones are required for normal growth and development, particularly of the nervous system
- Thyroid hormones enhance lipolysis and the utilisation of carbohydrate
- Iodine is very important for the endocrine system, specifically the reproductive sex organs
- People with toxic metal accumulation often will have a build up of other toxins such as pesticides and xenobiotics within the body. Natural Iodine may bind to these toxins and help remove them from the body
- It is essential to *drink chlorine and fluorine free water* to reduce Iodine antagonism

Deficiency: Iodine is blocked by *Aluminium*, *Mercury* and *Fluoride* (*all appearing raised*). Soils are often low in Iodine so there is a reduced opportunity for natural absorption from food.

Dietary Sources

Edible algae are the top source, followed by seafood and fish, iodised sea salt and eggs.

*Recommended **Iodine** Supplement:* QRX Iodine+

Selenium (Se)

Functions

- Various studies on this major antioxidant have shown its protective and preventive role in many diseases
- Se is a coenzyme for glutathione synthesis, which protects the cell membrane and the nucleus against oxidation when under attack by free radicals
- It protects against the toxic effects of heavy metals (*Arsenic*, *Mercury*, *Cadmium* and *Lead*), alcohol, tobacco smoke and various atmospheric pollutions
- Combined with Vitamin E, Se induces the formation of antibodies and prevents oxidative damage to chromosomes. Thus, together they boost immunity by enhancing the activation and proliferation of B lymphocytes and by strengthening the functioning of T cells
- Se protects the cardiovascular system by controlling the optimum amount of red blood cells, standardising platelet aggregation and accelerating fat metabolism. It is also a regulatory agent in blood pressure and heart rate

Deficiency: Mercury is a major antagonist for Se, as are *Cadmium*, *Arsenic* and *Lead*. Adequate Se levels are needed to help detoxify heavy metals.

Dietary Sources

Brazil nuts, eggs, mushrooms, red meat, chicken, whole grains (oat bran, oats, wheat bran & germ, rye flour, brown rice), mustard powder, sesame seeds & tahini, and all fish.

*Recommended **Se** Supplement:* QRX Se+

Mineral Excesses

Below are the minerals appearing in excess or raised on John's OligoScan. Mineral Excesses on OligoScan indicate either over-supplementation or a blockade – meaning the mineral is bio-unavailable. This can happen due to other minerals or toxic metals blocking the absorption and utilisation of the mineral in question.

Calcium (Ca)

Functions

- Ca is an essential mineral required for the function of numerous intracellular and extracellular processes including muscle contraction, nerve conduction, beating of the heart, hormone release, blood coagulation, *energy production* and maintenance of immune function
- Ca is regulated by the parathyroid hormone (PTH), calcitonin and vitamin D
- It is involved in bone and teeth mineralisation
- It plays a role in intracellular signalling and is involved in the regulation of many enzymes responsible for fat digestion and protein metabolism
- Ca absorption is impaired in achlorhydria (low stomach acid), intestinal inflammation and many malabsorptive disorders
- Ca deficiency may lead to muscle pain and spasms, bone pain, osteoporosis and increased risk of fractures, tooth decay, altered heart rate, and ambulatory developmental delay in children

Excess on OligoScan: Ca is blocked by *Cadmium* and *Lead,* and balanced by *Magnesium*, *Phosphorous*, *Boron*, *Silicon* and Molybdenum. When two or more of the bone minerals are out of balance tissue *acidity* (low pH) is suspected. The blood sequesters Ca from bone in an effort to balance the blood's pH. This in turn affects the other bone mineral levels.

Dietary Sources

Unpasteurised milk, dairy products, fish with bones, especially salmon and sardines, tofu, broccoli, collard greens, mustard greens, bok choy, clams and black strap molasses.

Recommended alkalising supplement: PRL Greens

Boron (B)

Functions

- Adequate levels of dietary boron are thought to play a significant role in calcium and bone metabolism, to help support healthy bone mineralisation and strong, cavity resistant teeth
- Boron has been linked to Vitamin D deficiency, low testosterone and oestrogen metabolism
- Boron may support healthy brain function and hormonal balance

Excess on OligoScan: If not supplementing, excess Boron on Oligoscan can indicate a blockade. When coupled with other 'bone mineral' deficiencies such as Calcium, *Magnesium*, *Phosphorous* and/or *Silicon*, *low pH* (acidity) is suspected.

Dietary Sources

Highest concentrations of B are found in avocado, peanut butter, peanuts, prune juice, grape juice, cocoa powder, wine, pecans, and raisins. Other sources are legumes, coffee, milk, apples and potatoes.

Recommended alkalising supplement: PRL Greens

Germanium (Ge)

Functions

- The function of Ge in humans is not well known but it has been linked to immune function and may act as an immuno-stimulant according to preliminary research studies
- Ge is linked to selenium blockades, often caused by overt or hidden mercury toxicity and/or zinc deficiency

Excess on OligoScan: This is often a sign of *Mercury* toxicity making the Ge bio-unavailable. Mercury antagonises Ge, thus Ge deficiency may be associated with Mercury toxicity symptoms.

Dietary Sources

Broccoli, celery, garlic, shitake mushrooms, milk, chlorella, onions, pearl barley, rhubarb sauerkraut, and tomato juice.

Sulphur (S)

Functions:

- S is involved in the composition of different amino acids.
- It is involved in many metabolic functions particularly in connective tissue and is often recommended in arthritis or osteoarthritis
- It has anti-allergic properties (like manganese) and can be very useful in skin diseases, eczema and dermatitis
- Required for detoxification and excretion pathways. It binds toxins to amino acids for excretion

Excess on OligoScan: High S on OligoScan usually indicates that the person is currently detoxing. S is an important cofactor for chelation of toxic metals from the body. Coupled with abnormally high levels of *Calcium*, Magnesium, Phosphorous or Zinc may indicate a Sulphur blockade.

Dietary Sources

Eggs, milk, horseradish, onions, garlic, red pepper, yeast, soy, legumes, and organic whole grains.

Fluoride (F)

Sources

- Common source is fluoridation of drinking-water
- Fluoridated dental preparations: toothpaste, mouth rinse, tablets, topical gels/foams, varnish, and fillings
- Tea drinks: tea plants absorb fluoride from the soil and older leaves tend to accumulate higher levels of fluoride
- Fluoride-based pesticides sprayed on to food - particularly grape products
- Fluorinated pharmaceuticals: fluoroquinolones antibiotic such as Cipro
- Occupational exposure: air contamination from many industrial processes such as aluminium, iron, fertiliser, and steel industries

Signs of Excess F

- Symptoms can be: nausea, *fatigue*, diarrhoea, headaches, gastric pain, muscular weakness, intermittent joint and bone pain
- pH (acidification) and electrolyte imbalance
- Inhibitory effects on the endocrine system including thyroid, pineal gland, adrenal glands, and the parathyroid
- Dental fluorosis: mottling of the tooth surface with white spots appearing on the teeth. More severe toxicity causes permanent brown spots to appear and increased porosity of the enamel weakening the teeth
- Skeletal fluorosis: fluoride accumulates in the joints resulting in impairment of major joints making movement difficult. Severe toxicity causes bone deformities and increased bone fracture risk
- Kidney and liver dysfunction

Mobilised Toxic Metals

Toxic metals can be harmful even in small amounts and have no known function in the body. If toxic metals enter the body and accumulate faster than the body can detoxify them, a gradual build-up will occur. Therefore, high-concentration exposure is not necessary to produce a state of toxicity as toxic metals accumulate in bodily tissues over time.

The accumulation of toxic metals can have adverse effects, even in small amounts. This is due to the manner of interaction within the body. Signs and symptoms may be nonspecific at first, and symptoms will be unique to the individual. Common symptoms may include digestive upsets, *fatigue* and/or a range of sensitivities. Long-term signs and symptoms of dysfunction or disease may develop. This will depend on the element concerned and the significance of the toxicity, as well as the mineral deficiencies and/or excesses exhibited by the individual.

Toxic Metals elevated for John are:

Aluminium (Al)

Sources

- Tap water – city treatment plants produce drinking water that use Al sulphate to eliminate microorganisms and organic matter from water, this is left in our drinking water
- Kitchen utensils like pots or certain packaging (rolls of Al foil or trays) release Al food. Canned food and soda cans also contain Al
- Food additives – dyes (E173), anticoagulants (E520 - E521-E522-E523) used in food made from egg whites, in pastries (E541, E555), in dried food powder (milk, coffee and soup powders, refined industrial cheese (E554-E556-E559), and baking powder
- Table salt contains aluminium as an anti-caking agent. Processed foods containing table salt will also contain aluminium
- Cosmetics such as some toothpaste, anti-perspirant deodorant, concealer, eye-shadow, talc, and foundation may contain Al chloride
- Most vaccines contain Al hydroxide which is used as an adjuvant to stimulate an immune response to the vaccine
- Medications - many antacids contain Al hydroxide, such as Gaviscon

Signs of Excess Al

- Symptoms can include: headaches, digestive tract dysbiosis, dry skin, hypoparathyroidism, kidney and liver dysfunction, neuromuscular and neurological disorders
- Al is toxic for the brain and can affect memory and cognition. Several studies show that the risk of developing Alzheimer's disease is eight times higher in people who have an unusually high amount of Al
- Al can interfere with the absorption of Calcium, *Magnesium* and *Phosphorus*. This may lead to potential bone metabolism issues
- Al toxicity may also lead to muscle aches, anaemia, digestive disorders, impaired liver function, and renal impairment
- Inflammatory muscle disease (macrophagic myofasciitis) whose symptoms are muscle pain and fatigue with a slight fever. Muscle biopsies (cell samples) performed on these patients reveal the presence of an abnormal concentration of Al in the muscle where they received a vaccine containing Al
- Disruptive action on the immune system: primary cause of autoimmune diseases

Silver (Ag)

Silver (Ag) tends to mobilise with Aluminium thus often appears high in sync with Al. Silver usually stays in the periphery of the body and doesn't lodge in the organs or brain like Al, thus is not such a concern unless it is very high.

Sources:

- Dental amalgams along with mercury
- Jewellery industry

- Photograph developer chemicals
- Surgical implants may be coated with silver
- Supplementation with colloidal silver

Signs of Excess Ag:

- Though rare, symptoms of excess Ag often present as symptoms of Aluminium and/or Mercury toxicity

Arsenic (As)

Sources:

- Naturally occurring in some foods, e.g. rice, seafood. Also found in drinking water, beer and table salt
- Insecticides, pesticides, fungicides
- Occupational exposure – glass and mirror manufacturing, wood preservatives (treated timber), paints, pigments, electronic devices, and alloys
- Commercial chicken feed, and was contained in sheep dips until the 1980's
- Congenital exposure
- Rat poison
- Cosmetics

Signs of Excess As:

- Lowered levels of Boron, Selenium, Vitamin E, and B vitamins
- Weakness, drowsiness
- Abdominal pain, fluid loss
- Headaches, seizures, vertigo
- Muscle pain and spasms
- Liver dysfunction
- Dermatitis, hair loss
- Peripheral neuropathy
- Has been linked to many cancers

Barium (Ba)

Sources:

- Commonly seen in people after digestive or oral motor function investigations (Ba enema, Ba swallow)
- In soils and foods such as nuts, seaweed, fish, and some plants
- Tattoo ink contains some Ba based chemicals (providing colour)
- Occupational exposure – Ba is used in the manufacture of many items:
    - Alloys, lubricants, electrodes, for nickel-barium parts (ignition devices)
    - Dyes and finishes for the textile industry, pigments, inks and varnishes
    - Coloured and optical glass, ceramics, paints, paper, artificial marble, cloth, enamels, rubber, plastics
    - In the refining of Al
    - Pesticides
    - Water softeners, drilling fluids, corrosion inhibitors
    - Refining animal and vegetable oils
    - Sugar industry

Signs of Excess Ba:

- Ba can be an indicator for the presence of xenoestrogens
- Interference with Potassium metabolism
- Long term exposure to Ba can cause cardiomyopathy, heart palpitations and angina
- Abdominal cramps
- Disruptive effect on the immune system

Beryllium (Be)

Sources:

- Air pollution (burning fossil fuels), nuclear applications, volcanic ash
- Manufacture of plastics, ceramics, electronics, computer components, dental plates, x-ray tubes, sporting goods, energy saving bulbs, and steel alloys
- Present in many industries including jewellery, dental, optical, metallurgy, electronic waste recycling, and aerospace

Signs of Excess Be:

- Be is irritating, allergenic and carcinogenic (high levels of reported lung cancer)
- Acute exposure leads to symptoms similar to that seen in pneumonia and bronchitis
- Shortness of breath
- *Fatigue*
- Loss of appetite
- Weight loss
- Joint pain
- Night sweats
- Fever
- Progressive respiratory failure
- Symptoms of chronic Be disease include breathing difficulties, coughing, chest pain, and general weakness. Signs include enlargement of the liver, spleen, and right heart, as well as the formation of kidney stones
- Granulomas on the lung
- Disruptive action on the immune system

Bismuth (Bi)

Sources:

- Bi is used in cast iron welding manufacture and in fusible alloys such as in bird pellets and fishing sinkers with a low toxicity
- Some Bi compounds are manufactured and used in the pharmaceutical industry (antacids, anti-haemorrhoid drugs, anti-ulcer drugs)
- Bismuth oxide is used in some dental materials including hydraulic silicilate cement (HSC) which is used for pulp regeneration, capping, root canal sealing and filling
- Hair dyes and cosmetics (lipstick)
- Used as a non-toxic replacement for lead in lubricating greases, oil and acrylic paints, and glazes

Signs of Excess Bi:

- Mostly affects the kidney, liver and bladder. Skin and respiratory irritation can follow
- *Lack of energy*, confusion, headaches, and memory loss
- Decreased appetite, weight loss and diarrhoea
- Joint pain, skin rashes, tremors
- Formation of black deposits on the gingival (bismuth line)
- Insomnia

Cadmium (Cd)

Sources

- For smokers, the major source of Cd exposure is cigarette smoke
- For non-smokers, the major source of Cd intake is food. This is due to the fact that Cd is present in trace amounts in food products: Cd that is present in the soil is easily absorbed by vegetables. Cd is a by product found in *superphosphate fertilisers*, so it can be found in the food chain. NZ has very high use of these fertilisers
- Cd is used mainly in:
    - The rechargeable nickel-cadmium batteries, solar cells
    - Electronic appliances

- In plastic, glass, and ceramic as pigments
- Artists' paints
- Coatings of metals and alloys to make them resistant to corrosion
- Burning plastics
- Coal fired industry
- Galvanised water pipes
- Mining, smelting and refining
- Paper mills
- Exhaust fumes from automobiles

Signs of Excess Cd:

- *Fatigue* is a key symptom, with trouble waking in the morning
- Difficulty concentrating
- Headaches
- Cd inhibits *Magnesium* and *Zinc* levels, as well as inhibiting glucose uptake
- Skin rashes
- An increased risk of bone fractures due to osteomalacia and osteoporosis
- Joint pain, gout, arthritis
- Liver/detoxification issues
- Hyperlipidaemia
- Muscle weakness
- Cd antagonises Calcium causing hardening and weakening of arteries and inflammation potentially leading to cardiovascular disease, arteriosclerosis, hypertension, or stroke
- Disruptive action on the immune system

Mercury (Hg)

Sources

- Dental amalgams*
- Preservative in vaccines (Thimerosal)
- Medications
  - Mercurochrome/Merbromin
  - Merthiolate – preservative in topical cream
  - Preparation H – haemorrhoid cream
  - Organomercurials – mercurial diuretics
- Congenital exposure
- Contaminated large fish and shellfish, contaminated drinking water
- Seeds and vegetables treated with mercurial fungicides, some fertilisers
- Used in the manufacture of paper, felt, chlorine, adhesives, fabric softeners, and waxes
- Gold industry
- Plastics
- Printing ink, some paints, tattoo ink
- Pesticides (organo-mercurial)
- Contact lens solution
- Neon lights, energy saving light bulbs
- Cosmetics (mascara, skin lightening agents)

*A person averaging eight amalgams in their mouth is intoxicated with 15 mcg Hg per day. In comparison, environmental Hg pollution and consumption of Hg-contaminated fish is only 2 mcg per day. In the mouth, a filling undergoes both mechanical abrasion and electrochemical corrosion. Hg is released mainly in the form of vapour and enters the body through breathing. When measuring the fumes coming out of a mouth with amalgam fillings, the value exceeds 480 times the accepted standard according to Ministry for the Environment NZ.

Signs of Excess Hg:

- Inhibits glucose transfer and the production of insulin and can be a factor in hypoglycaemia and diabetes

- Inhibits *Mg* and *Zn* levels
- Muscle tremors, muscle weakness, paralysis, convulsions, numbness and tingling in arms and legs
- Digestive problems, salivation, stomatitis, periodontitis
- Kidney damage
- Vision loss
- Hyperactivity and attention disorders in children, autism
- *Fatigue*, insomnia
- Neurological problems (memory loss, anxiety, depression, mood swings)
- Endocrine dysfunction, thyroid and immune dysfunction

Lead (Pb)

Sources:

- Contaminated dust and dirt is often how children are exposed to Pb
- Pb car batteries and other battery manufacture
- Mine and smelting industries
- Old water pipes and contaminated drinking water
- In the production of ceramics, glazes, PVC plastic, inks, ammunition, crystal, and fishing sinkers
- Cigarette smoke
- Food cans smouldered with Pb
- Pesticide residues
- Pb sheets used in the construction sector
- Some hair dyes (black)
- Previously used as a pigment in paints and an octane in gasoline (led to contaminated soil, water and air)
- Congenital exposure

Signs of Excess Pb:

- Saturnism (lead poisoning) refers to people with all of the indications of Pb intoxication
- Pb replaces Calcium through enzyme binding sites, especially in bone. Can lead to weak bones and osteoporosis
- Hinders activity of Magnesium, Vitamin B1 and Zinc
- Arthritis, gout, back pain
- Epilepsy
- *Fatigue*, insomnia
- Neurological disorders
    - Behavioural problems: hyperactivity, attention deficit disorder
    - Mental weakness, dyslexia
- Effects on bone marrow and blood – Pb blocks several enzymes needed for haemoglobin synthesis. May lead to anaemia
- Gastrointestinal problems
    - Constipation or diarrhoea
    - Metallic taste in the mouth
    - Abdominal pain or cramping
- Disrupts the immune system

Significant Mineral Ratios

The following significant mineral ratios are imbalanced:

Calcium/Magnesium Ratio (Pancreas/Insulin/Lifestyle ratio)

Increased Ca/Mg ratio

Indicates Mg deficiency. Increased insulin levels may be released leading to hypoglycaemic symptoms such as hunger, shakiness, nervousness, sweating, dizziness or light-headedness, sleepiness, confusion, anxiety, and weakness. The following may also be indicated:

- Lifestyle stress
- Eating high carbohydrate diet (leading to blood sugar stress)
- Osteoporosis
- Periodontal disease
- Hyperthyroidism or hyperparathyroidism
- Cardiovascular system problems
- Defect in Calcium absorption pathway with possible inappropriate Calcium deposition

Calcium to Phosphorous (Ca/P) Ratio (Nervous System ratio)

Increased Ca/P ratio

Indicates a parasympathetic dominant state of the nervous system where the body's functioning slows down. This is often characterised by symptoms such as slow heart rate, slow digestion and/or constipation, blood sugar imbalances, brain fog, and difficulty concentrating. The following may be indicated:

- Ca blockage suggesting poor utilisation of Ca, possibly due to P deficiency and excess Vitamin D
- *Decreased Sodium and Potassium levels*
- Impaired bone metabolism
- Reduced thyroid and/or parathyroid function
- Vitamin B6 supplementation may be required

Potassium to Sodium (K/Na) Ratio (Vitality/Kidney & Adrenals ratio)

Decreased K/Na ratio

Loss of K and/or excess retention of Na. The following may be indicated:

- Sympathetic state, characterised by acute stress and increased adrenal gland activity
- Adrenal gland hyperactivity leading to hypertension, anxiety, and cardiovascular problems
- Inflammation
- Excessive consumption of salt (processed and refined foods, or added to foods)

P.T.O for recommendations…

Dietary Suggestions for Evan

↑ ***Vegetables:*** (as suggested in food sources of deficient minerals) to help increase alkalinity of the body
↓ ***Sugar:*** (if taken) Sugar increases body acidity and depletes nutrients, especially Magnesium
↓ ***Coffee*** and ***black tea:*** (if taken) These can affect mineral absorption, especially Magnesium, Calcium and Iron
↑ ***High quality protein:*** in your diet to help enhance liver detoxification pathways
↑ ***Sulphur containing foods:*** such as *Brassicas* (cabbage, broccoli, cauliflower, brussel sprouts, and bok choy) and *Alliums* (onions, shallots, garlic, leeks) to support liver detoxification pathways
↑ ***Iodine-rich foods****:* such as kelp, seaweed, iodised sea salt
↓***Table Salt and Processed Foods:*** Instead use PRL Pink Salt to obtain electrolyte balancing minerals and many trace minerals
Include 1 tsp – 1 Tbsp of good quality essential fats/oils at each meal. Choose cold-pressed, extra virgin olive, coconut, flaxseed and avocado oils, nut butters, and butter made from organic cream. Eliminate any damaged, rancid and hydrogenated oils from the diet such as those found in margarine, fried and take-away food, and many snack foods and baked goods

Recommended Supplementation for John (for approximately 3 months)

QRX Mg Bisglycinate: Essential nutrient for multiple biological functions. Important for cell energy production, nervous system and musculoskeletal health. Supports absorption and utilisation of other minerals and vitamins Take 1-3 capsules daily
QRX MT+ (no added Copper): Provides trace minerals and higher doses of essential minerals (B, Se, Mn, Mo, Cr, Zn, Li, Cl and Mg) for balanced mineral levels and natural detoxification processes. Take 1 ml twice daily in a little water or juice, after food
QRX Se+: Essential mineral for liver function, detoxification of toxic metals, digestive, immune and antioxidant functions in the body. Take 1ml daily in a little water or juice
QRX Iodine+: For iodine deficiency. Take 1-3 caps daily (along with QRX MT+ – Se assists absorption)
QRX Silica+: An essential mineral required for bone, connective tissue, skin, hair, and nail health; helps to antagonise Aluminium out of the body's cells. Take 1ml daily in a little water or juice. *Take away from other minerals*
PRL Greens capsules: For phosphorous, calcium and silica and to help balance body pH. Take 2 caps daily with food

*QRX MT+ and QRX Se+ can be taken together in a little juice or water. We recommend Barkers Blackcurrant (Stevia Sweetened) Cordial to disguise the taste of liquid minerals if needed.

It is recommended to review this protocol with your practitioner monthly to monitor your progress and ensure optimal results. This protocol is intended to build the body up nutritionally in preparation for detoxification of toxic metals.

We strongly recommend you undergo a retest OligoScan in 3 months before commencing a detoxification program under the guidance of a qualified practitioner.

Disclaimer: The information and recommendations provided in this report are not intended to replace the advice of your GP or health care provider. No claims are made in this report to diagnose, treat, cure, or prevent any disease. If symptoms occur, please consult your health care provider to determine the best approach and appropriate modifications that may be required for you.