

Naturopathic Nutrition
Electrolyte Balance
Detoxification
The Liver

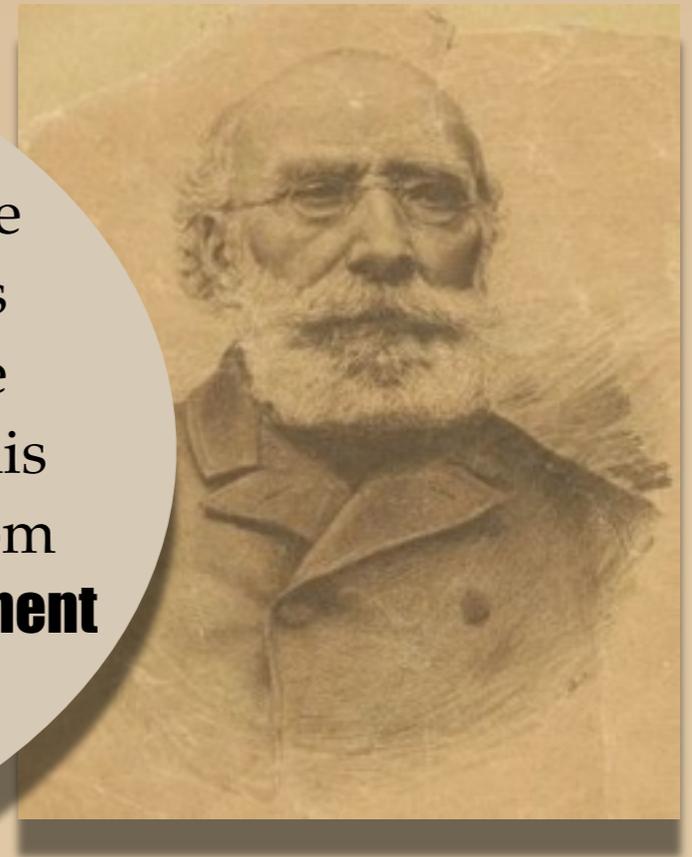
To understand toxicity, it is important to first understand the principles of **naturopathic nutrition**

The fundamental principles of **Naturopathic Nutrition** dates back thousands of years, with roots in Ayurvedic medicine, “Mother of all medicine” and relating to the writings of Hippocrates, “Father of Modern Medicine” who said “Natural forces within us are the true healers of disease”.

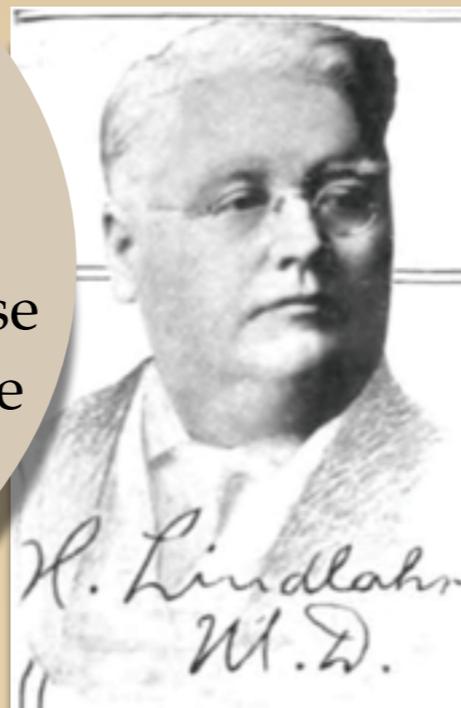


At the beginning of the 1900s, **allopathic medicine** was following the “germ theory” of disease proposed by Louis Pasteur

Whereas **Naturopaths** favoured the scientific discoveries of Pasteur’s contemporary, Professor Antoine Bechamp, who showed through his experiments, that disease starts from **within the cell** providing the **environment** for “germs” to proliferate



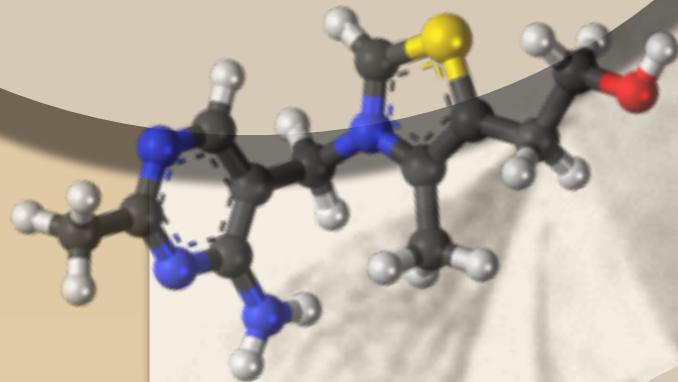
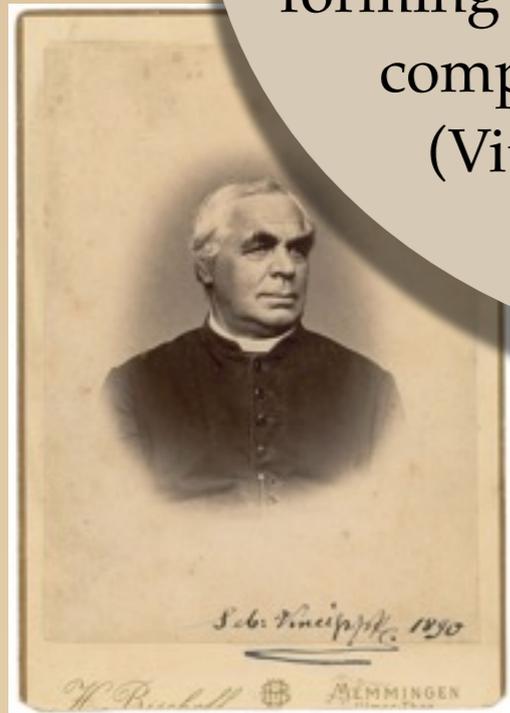
From 1911 onwards, Naturopath, Dr Henry Lindlahr’s publications continued the naturopathic philosophy that pathogenic agents do not directly cause symptoms of a disease, rather they are the result of the body’s attempt to **defend** and **heal** itself



Allopathic medicine and naturopathic medicine therefore went their separate ways with allopathic medicine **suppressing symptoms** and natropathic medicine suuuprting the body in its ability to **detoxity**



(1862-1924) After overcoming obesity and diabetes through the teachings of Father Sebastian Kneipp, Dr Henry Lindlahr pioneered the use of vitamin and mineral supplementation, forming what may have been the first company to produce thiamine (Vitamin B1) commercially



Henry Lindlahr "...is remembered for his conviction that disease did not represent an invasion of molecules, but the body's way of **healing** something. In other words, he viewed symptoms as positive physiological response and proof that the body was fighting whatever was wrong."

In naturopathy, pathogenic organisms are seen not so much the cause of disease but as its result and accompaniment



Naturopaths believe that disease results from accumulation of waste materials, toxins, poor eliminations, abnormal composition of lymph and blood, and the violation of natural living laws. Ill health is a product of the **internal environment** “terrain”.



Nature has provided us
generously with everything
we need to remain in
good health

- Father Sebastian Kneipp (1824 – 1897)

www.gutfeelings.uk



The foundation of **Naturopathic Nutrition** is based on Vitalism – *Medicatrix Nature* (the healing power of nature)

We have a **Vital force** (Life Force), and given the right conditions, the body will self-heal. Naturopathy is a system of healthcare which promotes the body's own self-healing mechanisms. Maintaining good vitality helps prevent cells from becoming diseased

Disease is a manifestation of the Vital Force, which obstructs normal functioning of organs and tissues. When tissues are **cleansed and well-nourished**, cells have high vitality. An individual has the power to heal themselves through internal vitality. Maintaining good vitality helps prevent cells from becoming diseased



A silhouette of a person with long, curly hair stands on a beach, looking out at the ocean during a sunset. The person's arms are slightly out to the side. The background is a warm, golden sky over the sea.

A naturopathic practitioner does not prescribe, treat or cure. Our role is to stimulate and support the body's natural healing process by teaching **self-care**, and **empowering** clients to restore and maintain good health and high vitality, helping to **prevent** onset of further diseases



Individuals have a **unique** interaction with nutrients. Wholefoods most appropriate for an individual are sought, and obstacles removed, to support the body's **inherent** powers of recovery

Naturopathic nutrition uses a holistic (whole) approach to healing, viewing the client as a **whole**, not merely the symptom, disease, affected area or organ. It considers the mind, body and spirit, diet, lifestyle and environment

Each person has a **unique response** to the environment, individual strengths, weaknesses and needs, which may have been acquired or passed from previous generations (genetic influences)



All diseases are seen as **one**, and symptoms attempts by the body to purify itself of **toxins**

Providing the body has the appropriate **life force** (energy), the body tries to self-heal and achieve homeostasis by throwing out waste products from cells to the extracellular matrix (tissues and fluids surrounding cells), to the lymph, blood, liver, bowel and kidneys, also skin, lungs, and even the womb



All elimination routes **must** be working before removal of **cellular toxins** can begin or take place. Success of elimination, depends upon the strength of the vital force

If symptoms are **suppressed**, and root causes not addressed, wastes will be driven **deeper** into the system, contributing to chronic diseases



The body may need to **self-detoxify** through fever, colds, (sneezing, sweating), ear infections, discharges, sore throats, diarrhoea, skin eruptions (eczema, psoriasis, asthma)

These eliminations (symptoms) by the body are often **suppressed** by medications, vaccinations, antiperspirants, over the counter medications (NSAIDs/ pain killers, topical creams), so the body has to find other ways to eliminate, or may have to **store** the toxins in bones, tissue or fat



Healing happens according to **Herings Law of Cure** – from the top of the body downwards

Headache->sore-throat->cough
From the inside outwards
From the most important to least important organs, torso to extremities

Cure takes place in reverse order of old symptoms. The reverse occurs with disease

For example - if eczema is suppressed, it goes deeper into the body and further up, and often asthma follows



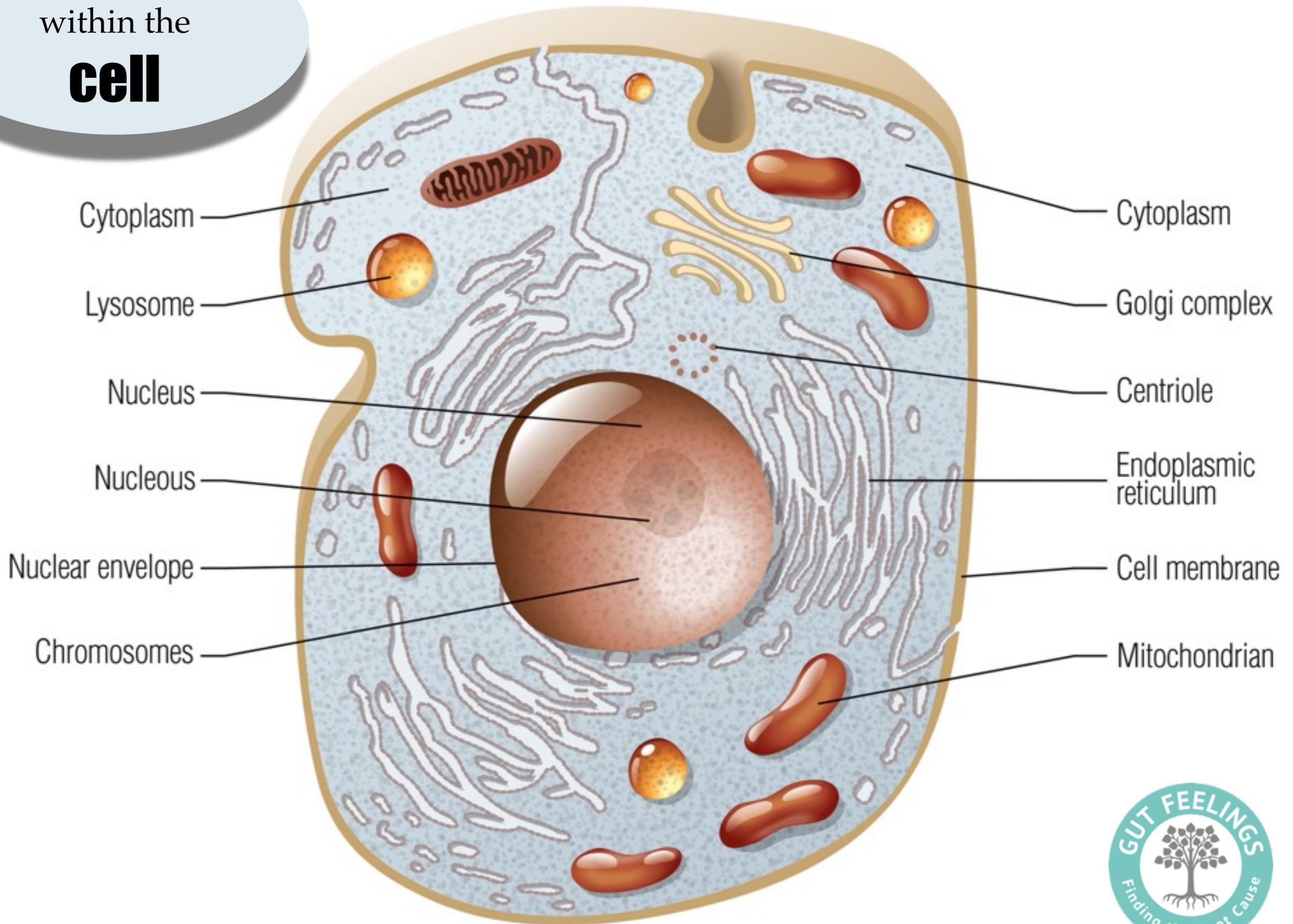
Naturopaths search to identify **root causes** of disease to help patients improve their Vital Force. A Naturopath will “do no harm”, never using remedies that may create other conditions

Detailed history taking is a vital part of detection with the addition of observational tools such as; general observation of the tongue, face, pulse, nail and hair, sweat, eyes, demeanour, energy

Laboratory tests may be used to determine root causes. Tests such as stool testing and hair mineral analysis may be suggested to determine food gut mycology, pathogens, e.g. candida, gut permeability (leaky gut), inflammatory bowel disease markers, adrenal and thyroid status, vitamin and mineral status, heavy metal toxicity

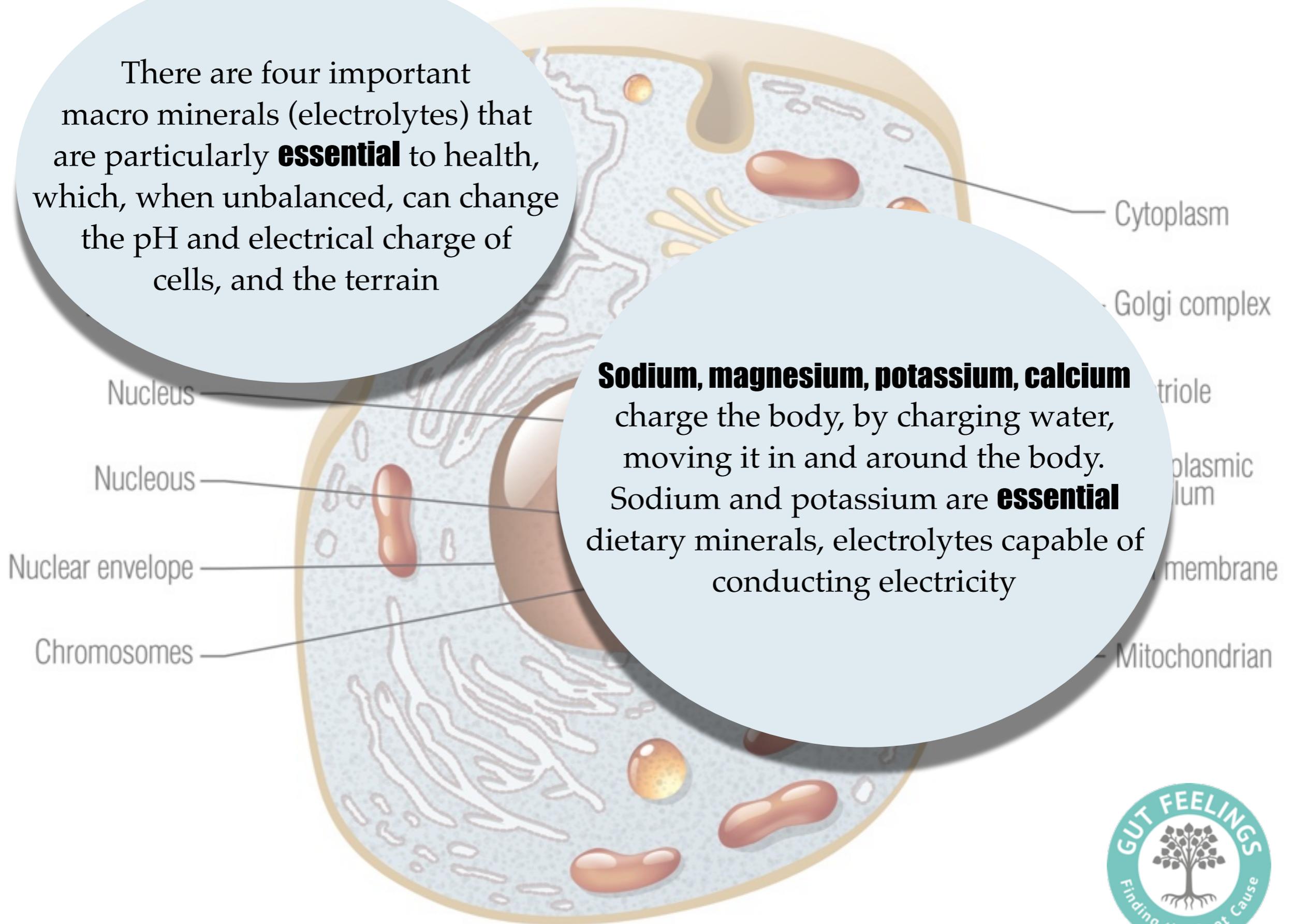


It all starts
within the
cell



There are four important macro minerals (electrolytes) that are particularly **essential** to health, which, when unbalanced, can change the pH and electrical charge of cells, and the terrain

Sodium, magnesium, potassium, calcium charge the body, by charging water, moving it in and around the body. Sodium and potassium are **essential** dietary minerals, electrolytes capable of conducting electricity



Normal body functioning, and chemical reactions, depend on the optimum regulation of sodium and potassium both inside and outside of cells, and their appropriate **balance** is important in **sustaining life**

Cytoplasm

Lysosome

Nucleus

Nucleous

Nuclear envelope

Chromosomes

Cytoplasm

Golgi complex

Centriole

Endoplasmic reticulum

Cell membrane

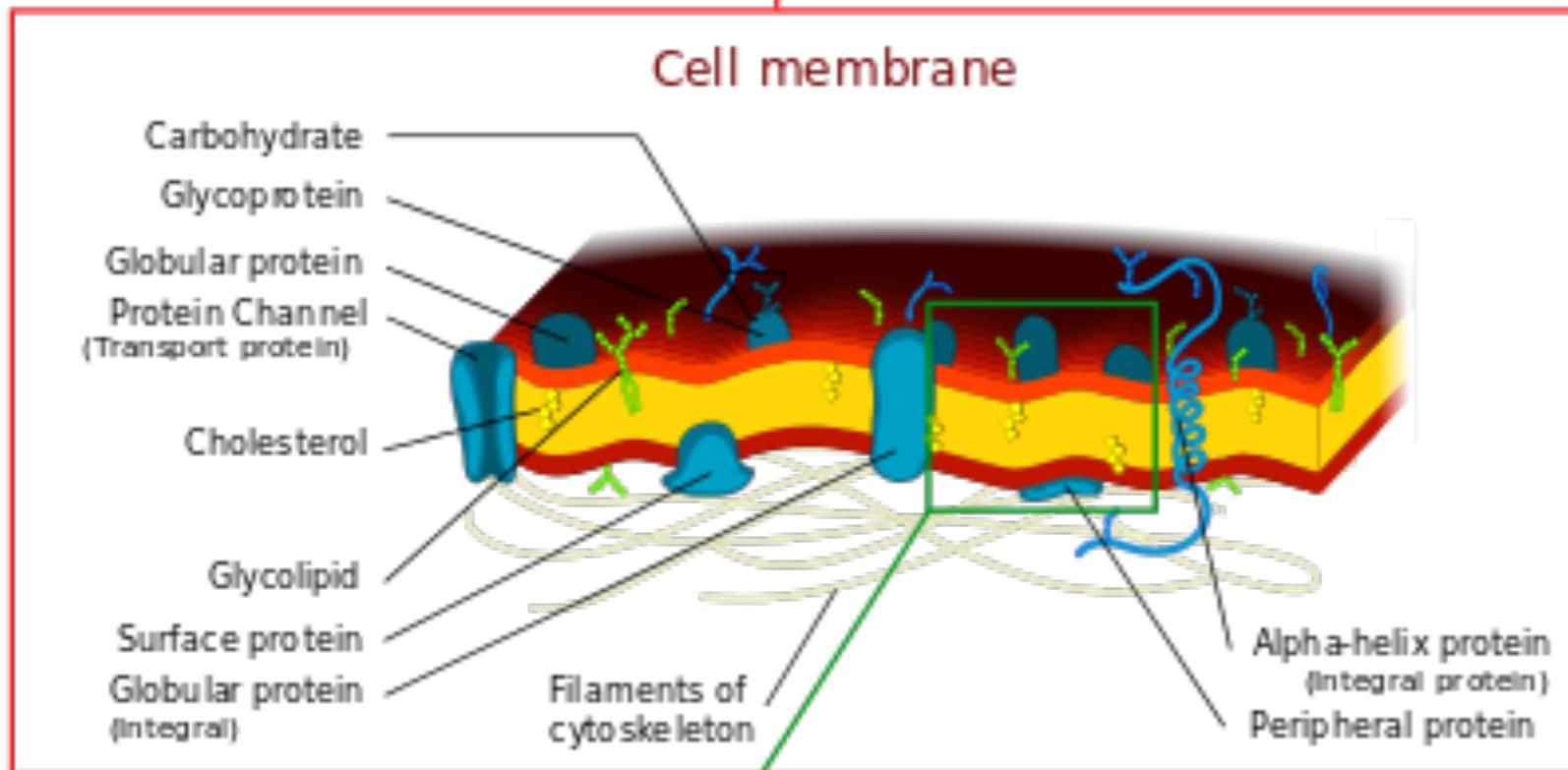
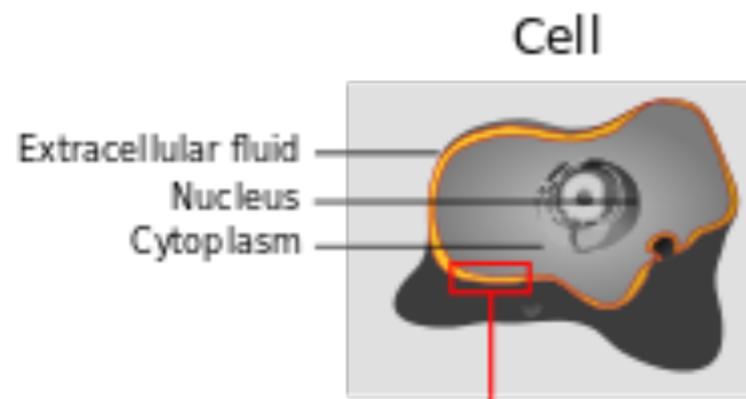
Mitochondrian



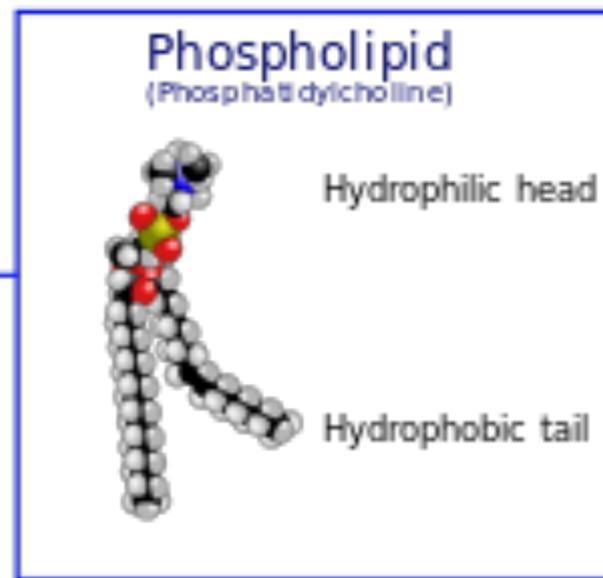
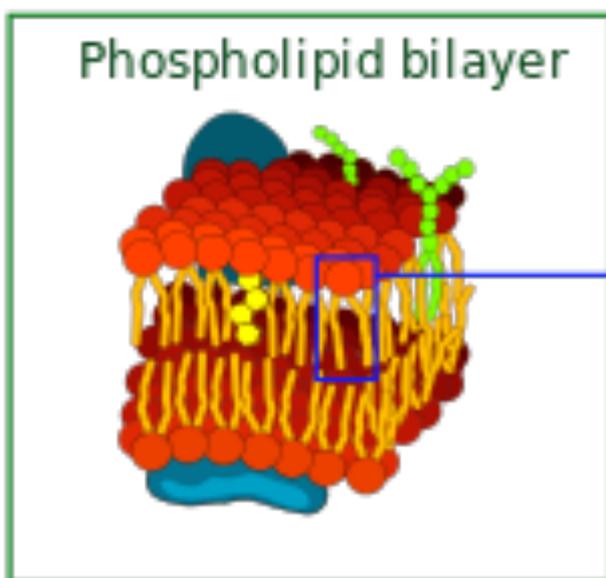
The first primitive cells likely developed in the sodium-abundant ocean. The cell membranes (walls) of our primeval life forms developed a cellular protein pump, known as the **sodium-potassium pump** to power cellular reactions and to keep the balance of electrolytes inside and outside the cells in the sodium-rich environment

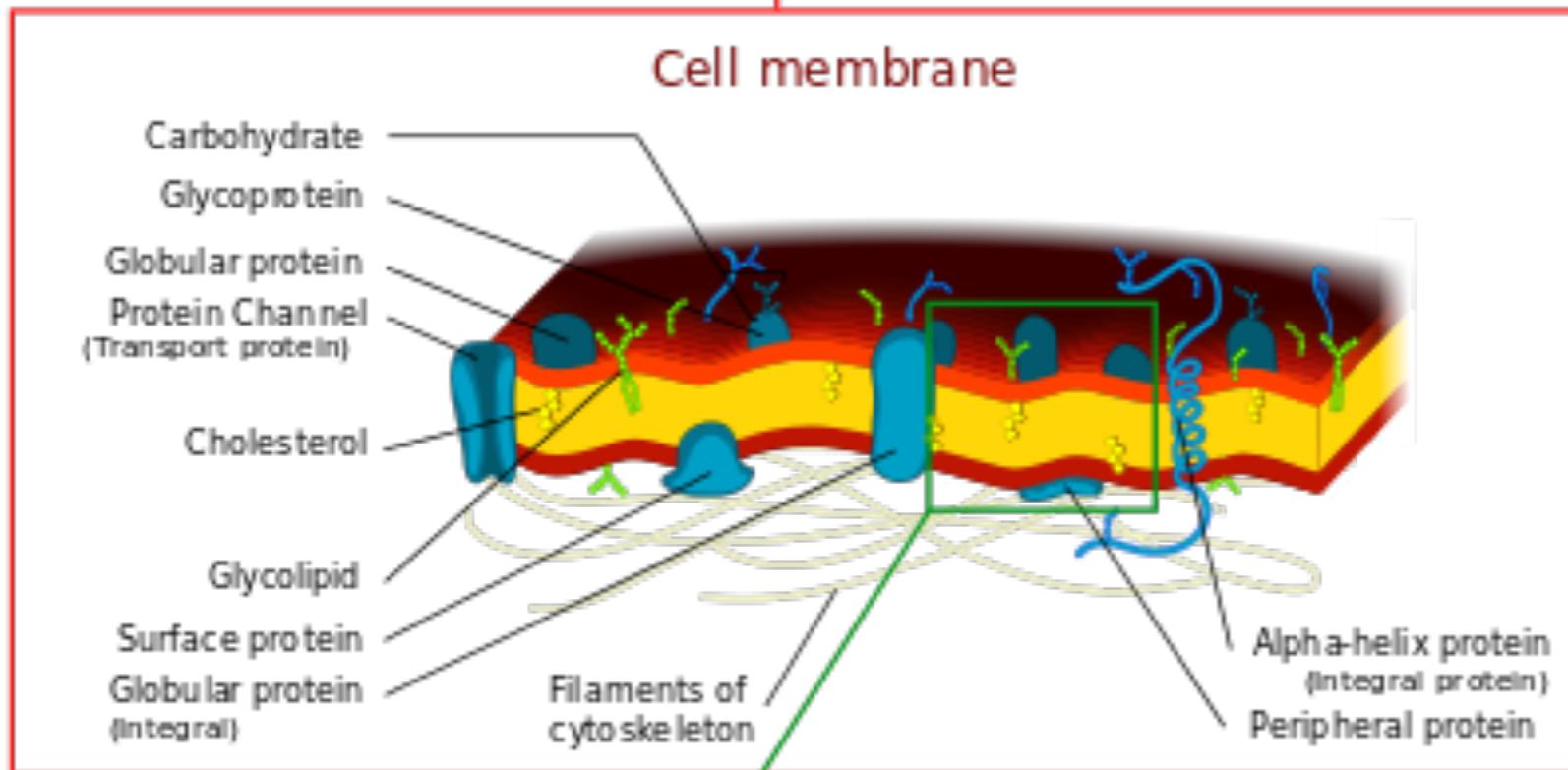
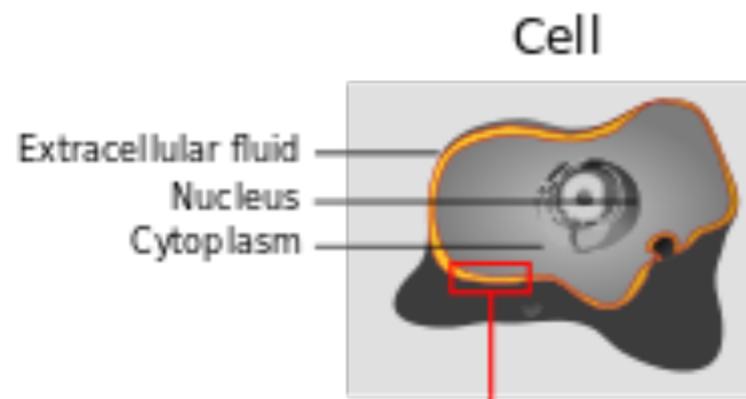
Protein molecules in the cell walls act as channels and pumps, such as the **sodium pump**, that move different molecules **in and out** of the cell



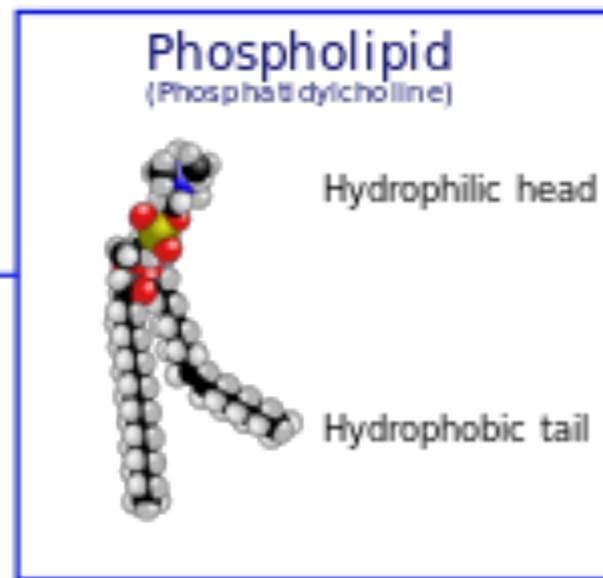
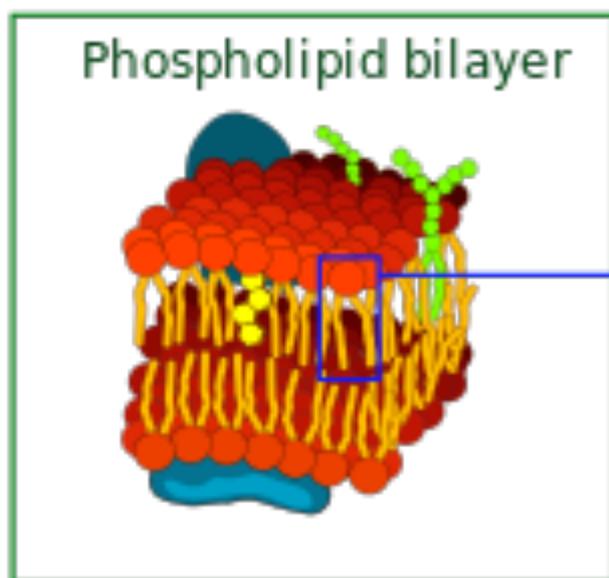


The cell membrane (wall) serves to separate and protect a cell from its surrounding environment and is made mostly from a double layer of phospholipids (fat-like substances)





The cell membrane (wall) is semi-permeable, and selectively permeable, in that it can either let a substance (molecule or ion) pass through freely, pass through to a limited extent or not pass through at all

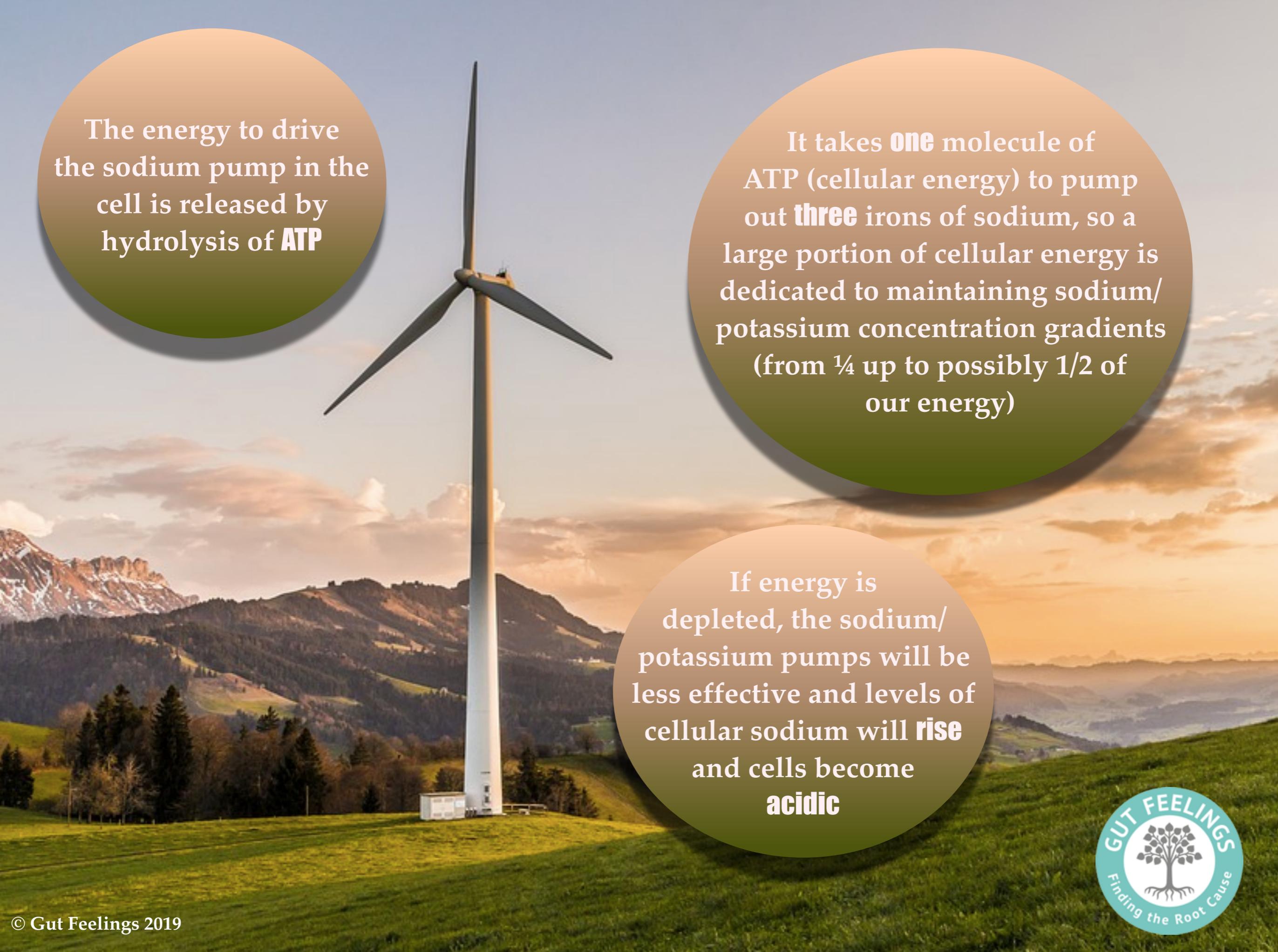


As evolution continued and we moved to land, there was **less sodium** in the environment, and more **potassium** in the abundant vegetation

The body evolved to adapt to these “new” conditions by retaining sodium and calcium when needed to **increase blood pressure** for surviving acute stressful events – the sympathetic nervous system “fight or flight”

The body would then revert quickly to cell **homeostasis** with the minerals in their correct places, with the rich diet of potassium and magnesium in the vegetables, fruit, nuts, seeds, occasional meat





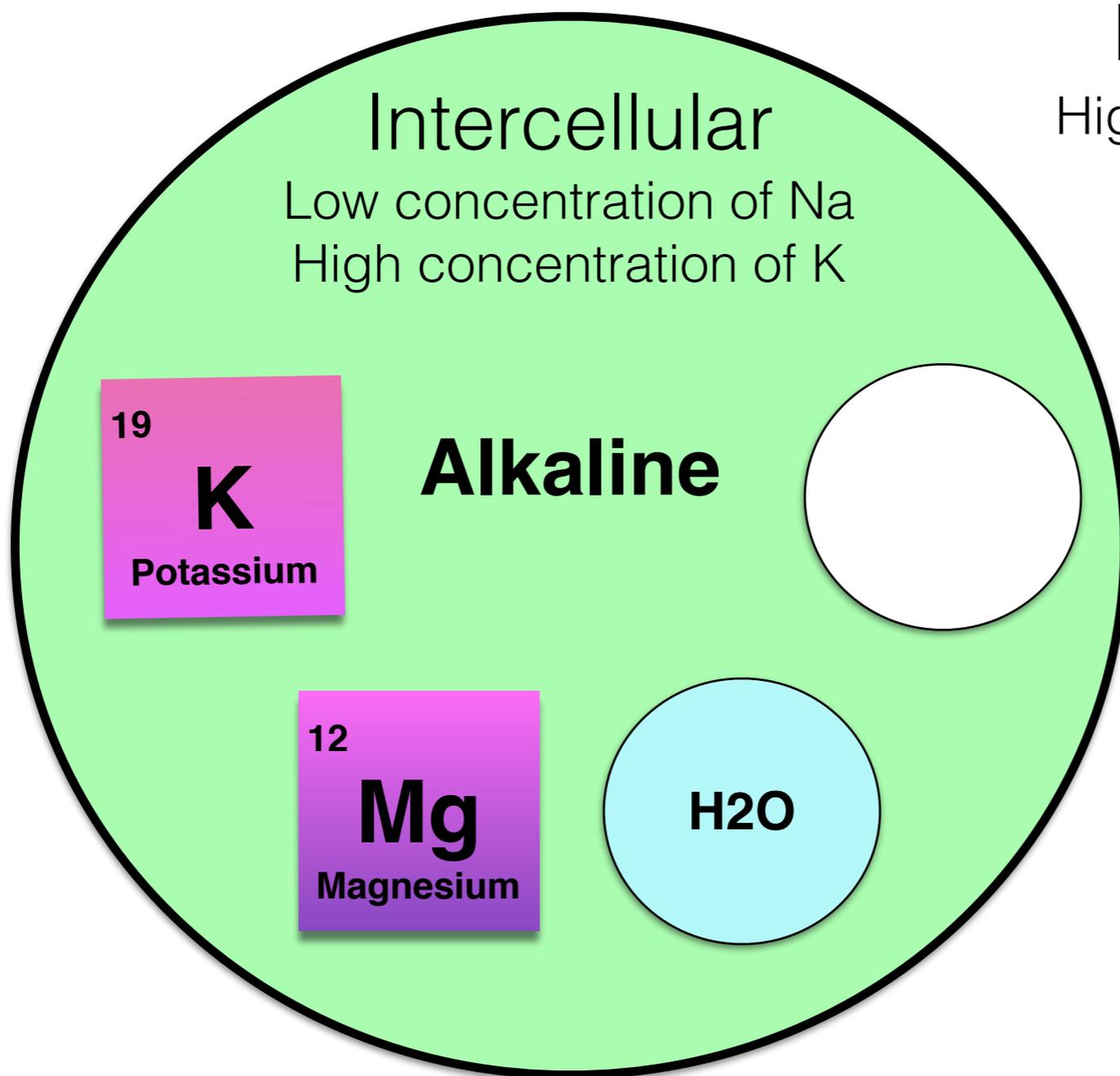
The energy to drive the sodium pump in the cell is released by hydrolysis of **ATP**

It takes **one** molecule of ATP (cellular energy) to pump out **three** ions of sodium, so a large portion of cellular energy is dedicated to maintaining sodium/potassium concentration gradients (from $\frac{1}{4}$ up to possibly $\frac{1}{2}$ of our energy)

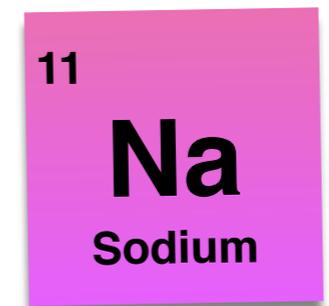
If energy is depleted, the sodium/potassium pumps will be less effective and levels of cellular sodium will **rise** and cells become **acidic**



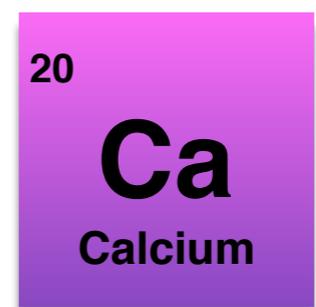
Sodium ions are pumped **out** of the cell, and potassium ions are pumped **into** the cell. Potassium and magnesium reside predominantly inside the cell, with sodium and calcium outside the cell



Extracellular
High concentration of Na



Fluid regulation



Heart, Blood sugar



However, in order to detoxify cells, this balance fluctuates

During the day, when it is light and we are active, sodium and calcium move into cells via the cell membrane

When we become tired more sodium will enter the cells without being effectively expelled so the build up of sodium and calcium makes us feel tired and ready for bed



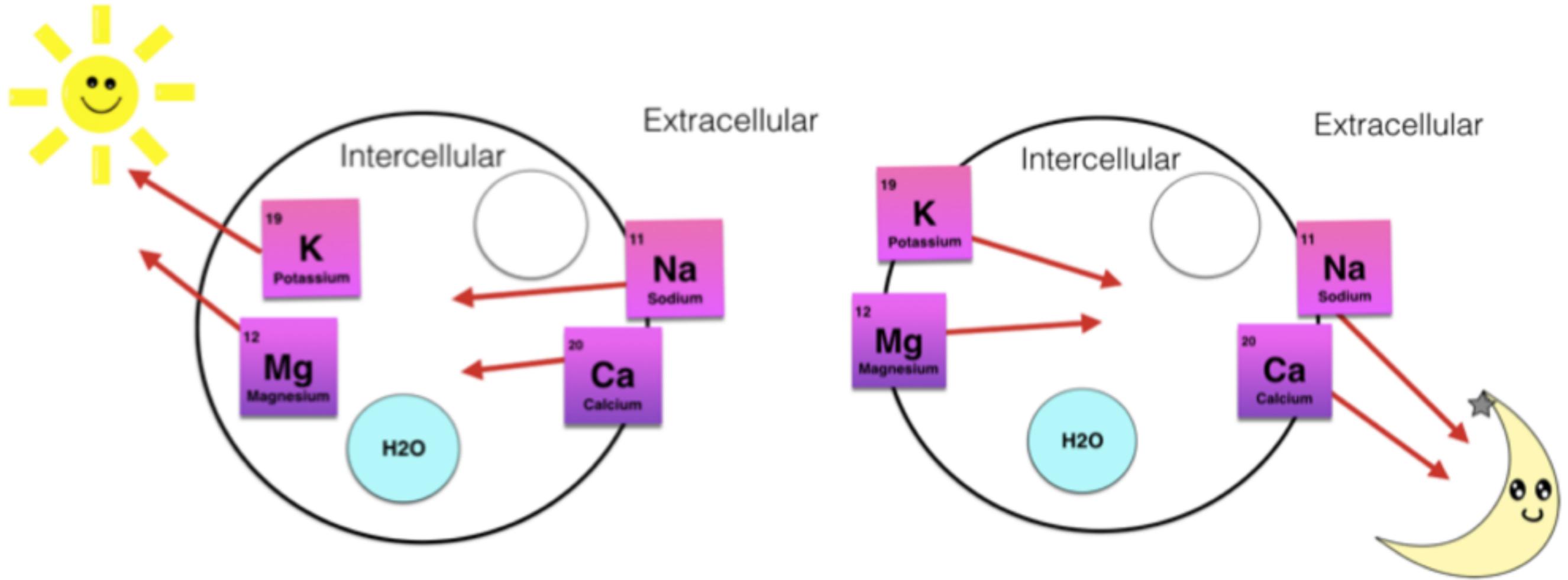


When we become **tired** more sodium will enter the cells without being effectively expelled, so the build up of sodium and calcium makes us feel tired and ready for bed

Sodium/potassium pumps slow down at night, as the moon with its affinity for sodium, draws it out of the cell, and this process is **reversed**

Sodium displaces potassium and **calcium** displaces magnesium. In order to restore balance, we need to **rest**





During the night sodium and calcium are replaced with potassium and magnesium, providing the ability to detoxify cells, which **should** result in us feeling **refreshed** upon waking

If we are in good health, during sleep, vitality is increased and energy restored as the electrolyte balance is **re-established** with sodium and calcium back outside the cell, and potassium and magnesium inside the cell



Sodium is vital for muscular contractions, production of stomach hydrochloric acid, transmission of nerve impulses, and maintenance of water balance. However, with modern high sodium/calcium diets, the **balance** is very different

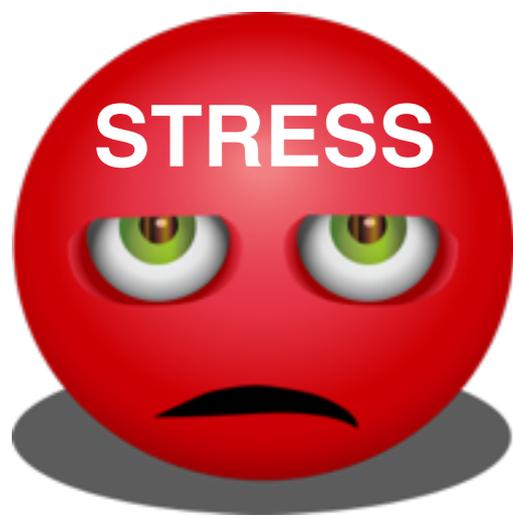
Nowadays we eat low amounts of potassium and magnesium (vegetables and fruits) and instead eat more **processed foods** which have added calcium and salt, so the balance is tipped in the **wrong** direction





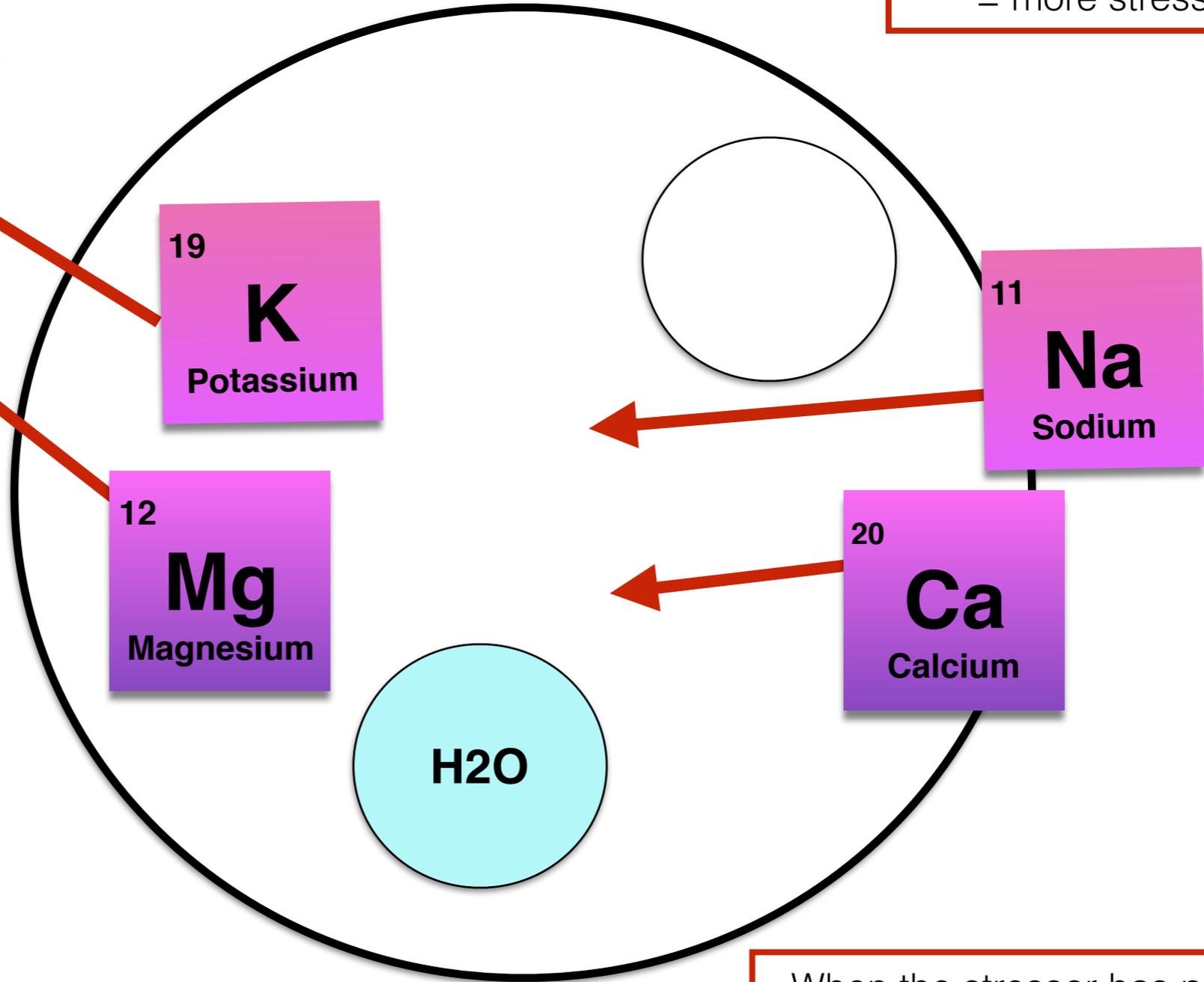
Many also live with high **stress** levels (physical, emotional, environmental, biological) which may also contribute to **sodium imbalance** if the sympathetic nervous system is constantly switched on as stress causes the body to hold on to sodium to **increase blood pressure** for the fight or flight response (see stress Fact Sheet)





Sodium and Calcium enter cells upon **stress response** to increase blood pressure - more oxygen to muscles and we can run faster for "fight or flight"

Stress = dehydration
= high histamine
= allergies
= more stress



When the stressor has passed, normally with a high potassium, low sodium diet potassium and magnesium should return to the cell, sodium and calcium go back into the blood stream = homeostasis.

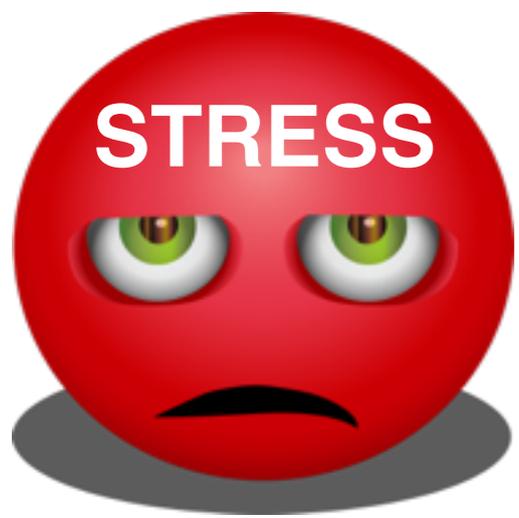
Water is needed to help the flow of electrolytes across the cell membrane. Low intake of water, or diuretics will affect cellular hydration. Diuretics include tea, coffee, caffeine, alcohol, sugar and stress. Low hydration activates the hormone **histamine**, which regulates water in the body. High histamine levels may contribute to increased responses to **allergens**



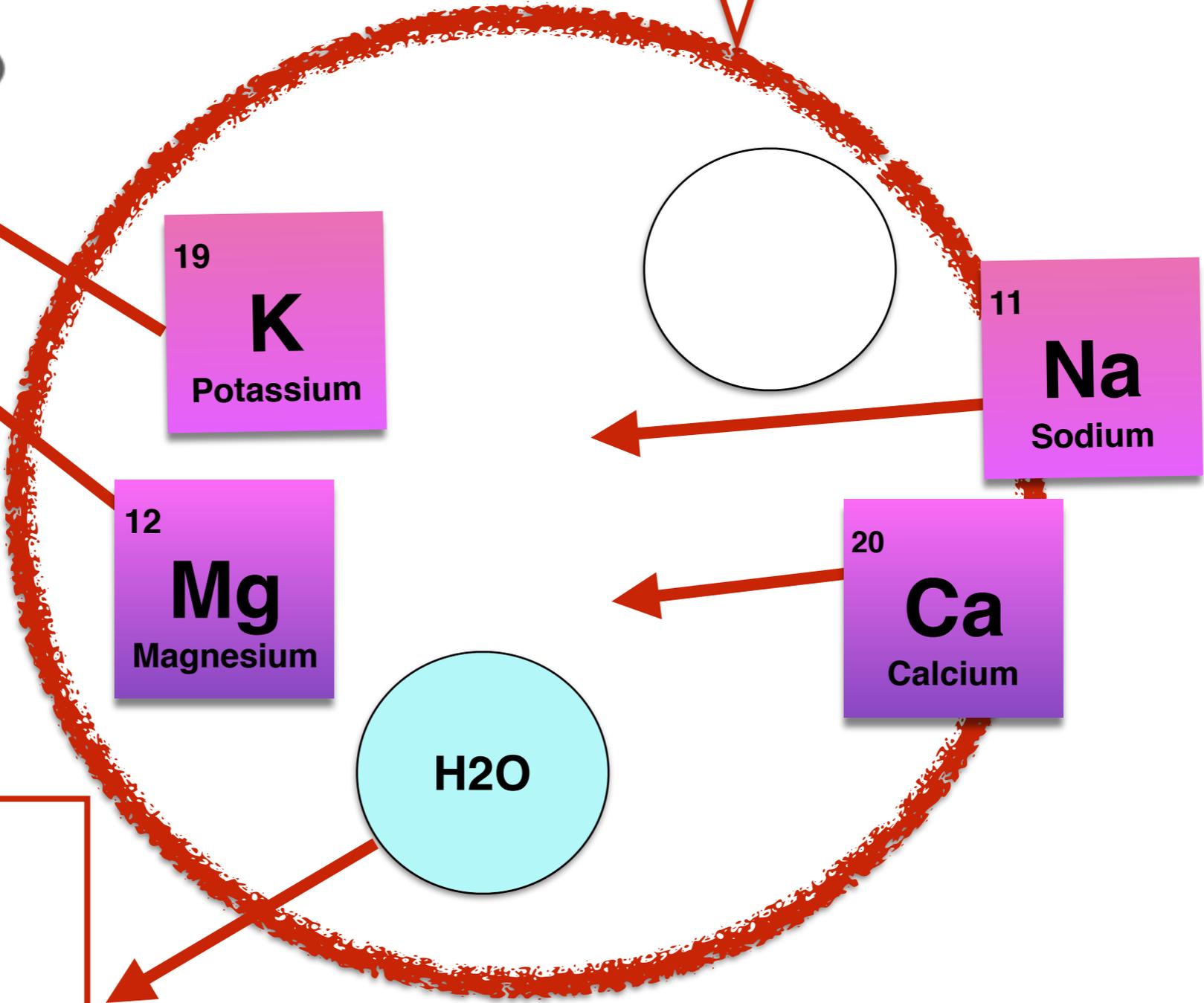
When we are dehydrated the body protects us by triggering the liver to produce more **cholesterol**, (a normal part of the cell membrane) to protect the cell membrane from losing water, making it less **permeable**

This reduced cellular membrane permeability, **lessens** the normal cellular movement of the four electrolytes, with the gentle action of the moon at night potentially **struggling** to draw sodium and calcium out of the cells





When dehydrated, the cell membrane produces more **cholesterol** to help prevent water loss



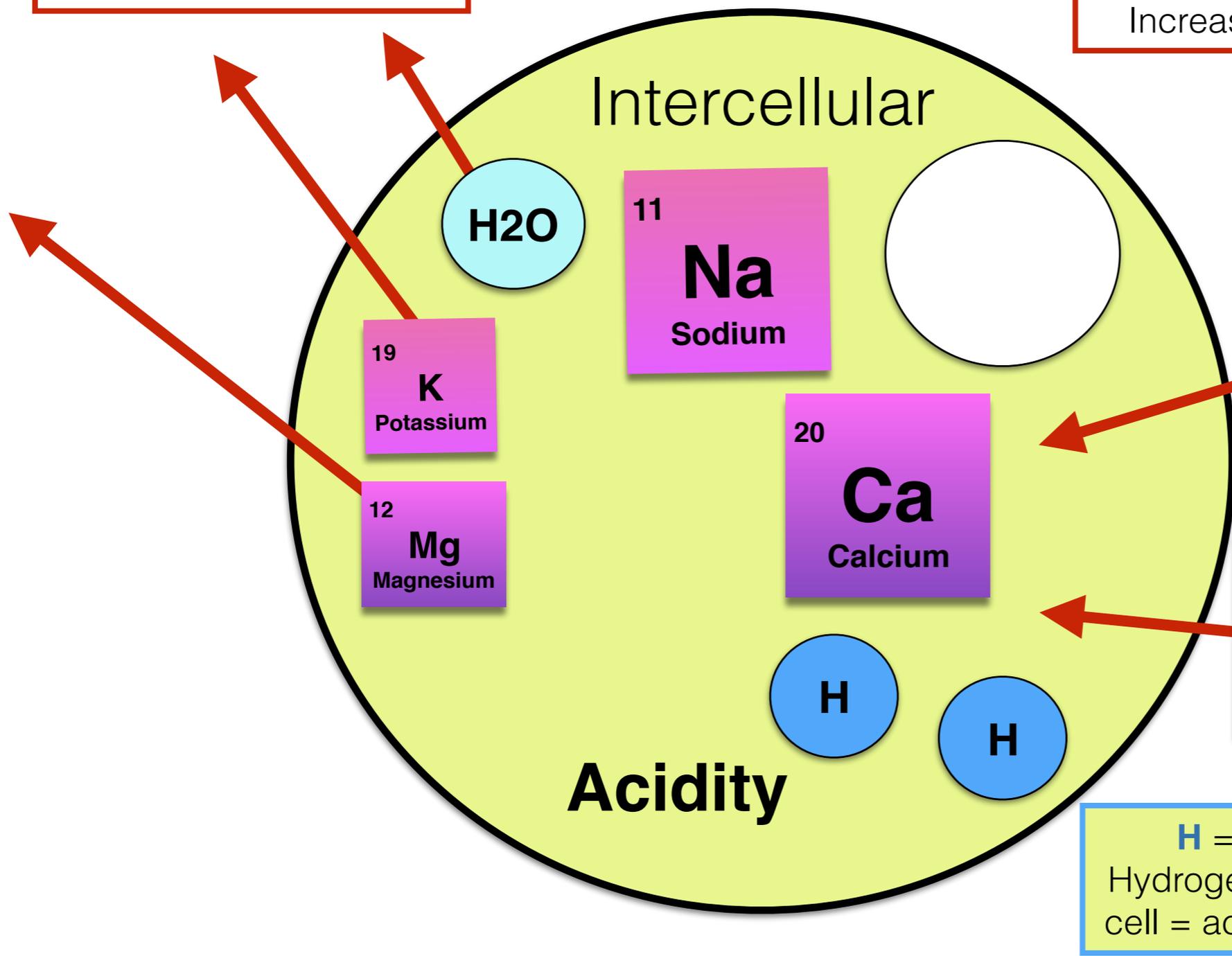
Diuretics
STRESS
Tea, Coffee
Caffeinate drinks
Alcohol
Sugar
Loss of potassium & magnesium

Cells become more **acidic**

Extracellular

High sodium = acidity
Acidity = low energy production
Increased acidity = oxidation
Increased oxidation = inflammation

Diuretics



Blood needs Ca so takes calcium from bones. Misplaced calcium (osteoperosis, arthritis).

Blood needs Na = Salt cravings.

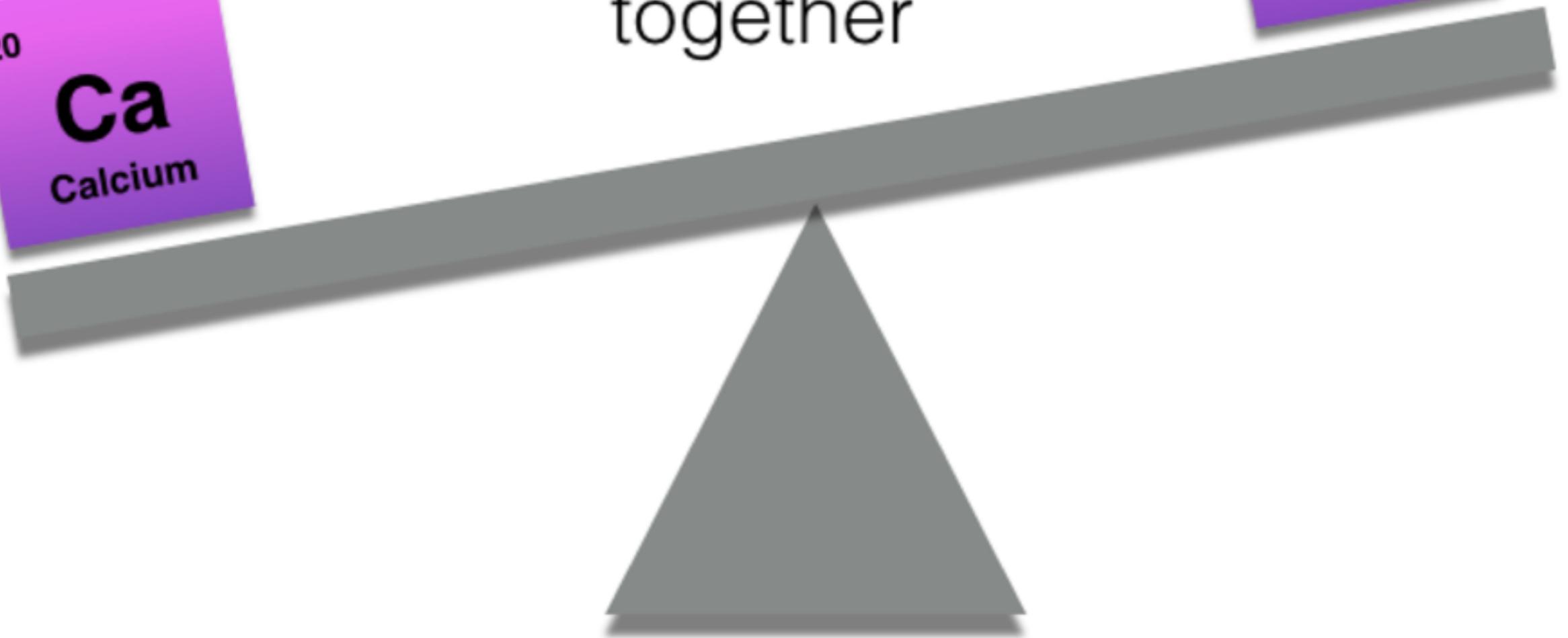
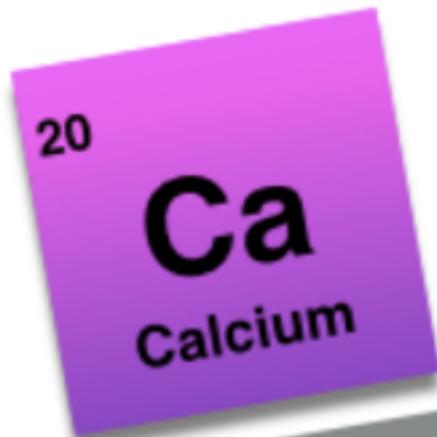
↑ Pineal Gland
↑ Thyroid
Thymus
Adrenals
Pancreas
Blood sugar

Potassium & magnesium = alkalising - assist acid elimination

Regulates release of insulin. Blood sugar drops when calcium enters the cell

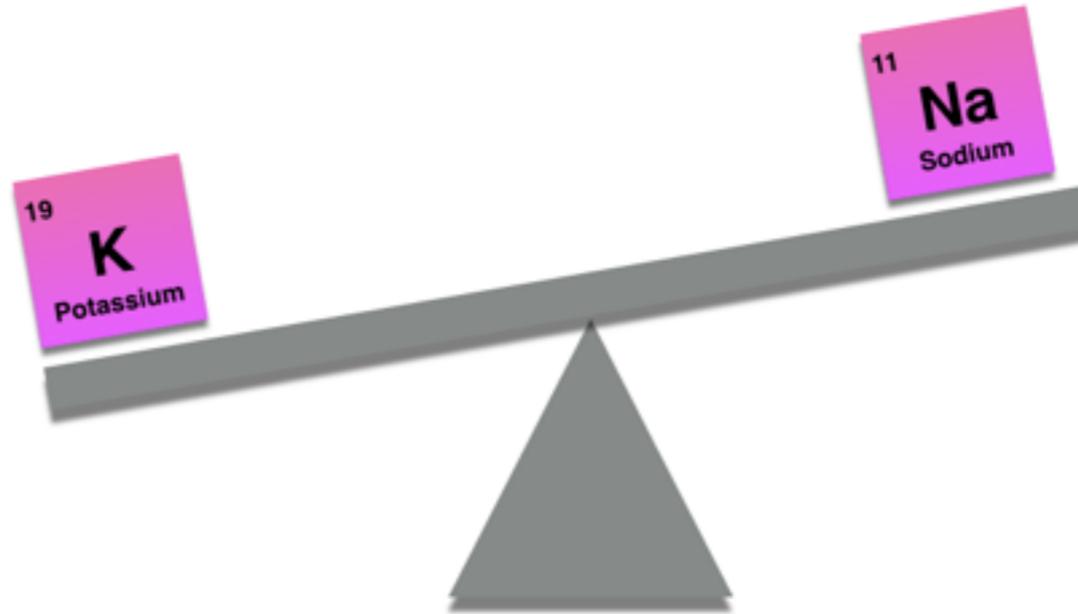
Helps calcium to be correctly utilised, ensuring it is kept out of the cell. Regulates release of insulin

Work closely together

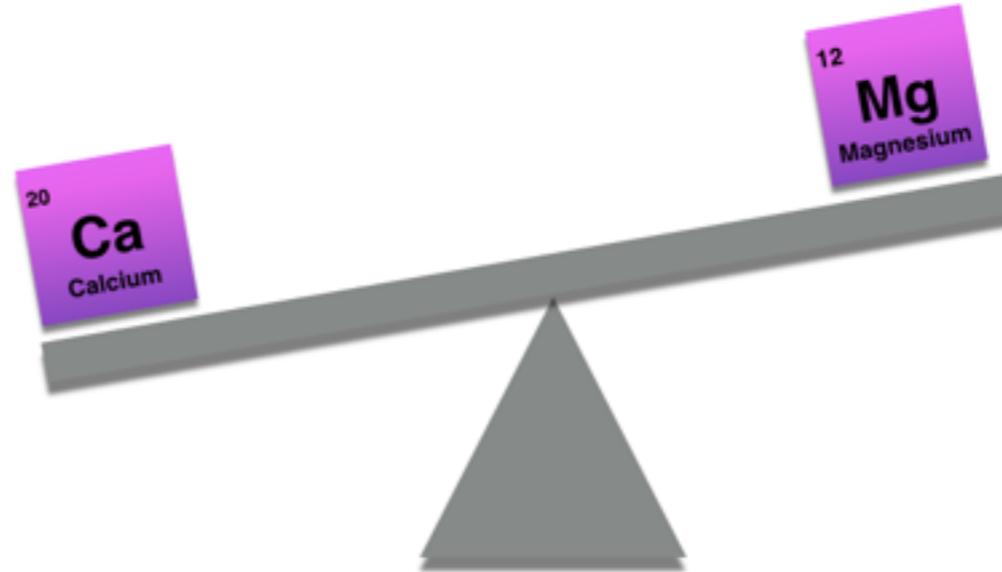


11 Na Sodium	12 Mg Magnesium
19 K Potassium	20 Ca Calcium

Sodium and potassium antagonise each other



Calcium and magnesium antagonise each other



Sodium / Potassium Balance

- The exchange of intracellular and extracellular fluid is controlled mainly by sodium and potassium.
- An increase in sodium creates a more acidic cell, whereas potassium helps to keep the cell more alkaline.
- A drop in intercellular potassium will cause fluid to leave the cell, whilst an increase in intercellular sodium will cause fluid difficult to keep sodium out of cells. This is when disease may start to develop

In the **short term**, the body can cope with an overload of sodium, but in the **long term**, sodium pumps may become **overworked**, so when energy is in low (a breakdown of the citric acid cycle), they find it difficult to keep sodium out of cells



A **low intake** of potassium will allow sodium to accumulate within cells, and excess sodium will lower the body's potassium levels. So as well as having a diet low in sodium, a diet needs to have appropriate potassium (and magnesium and calcium), to maintain the **balance** and equilibrium within the intracellular and extracellular fluid

Potassium-rich foods include pulses, fruits and vegetables, but is depleted during storage, washing and cooking



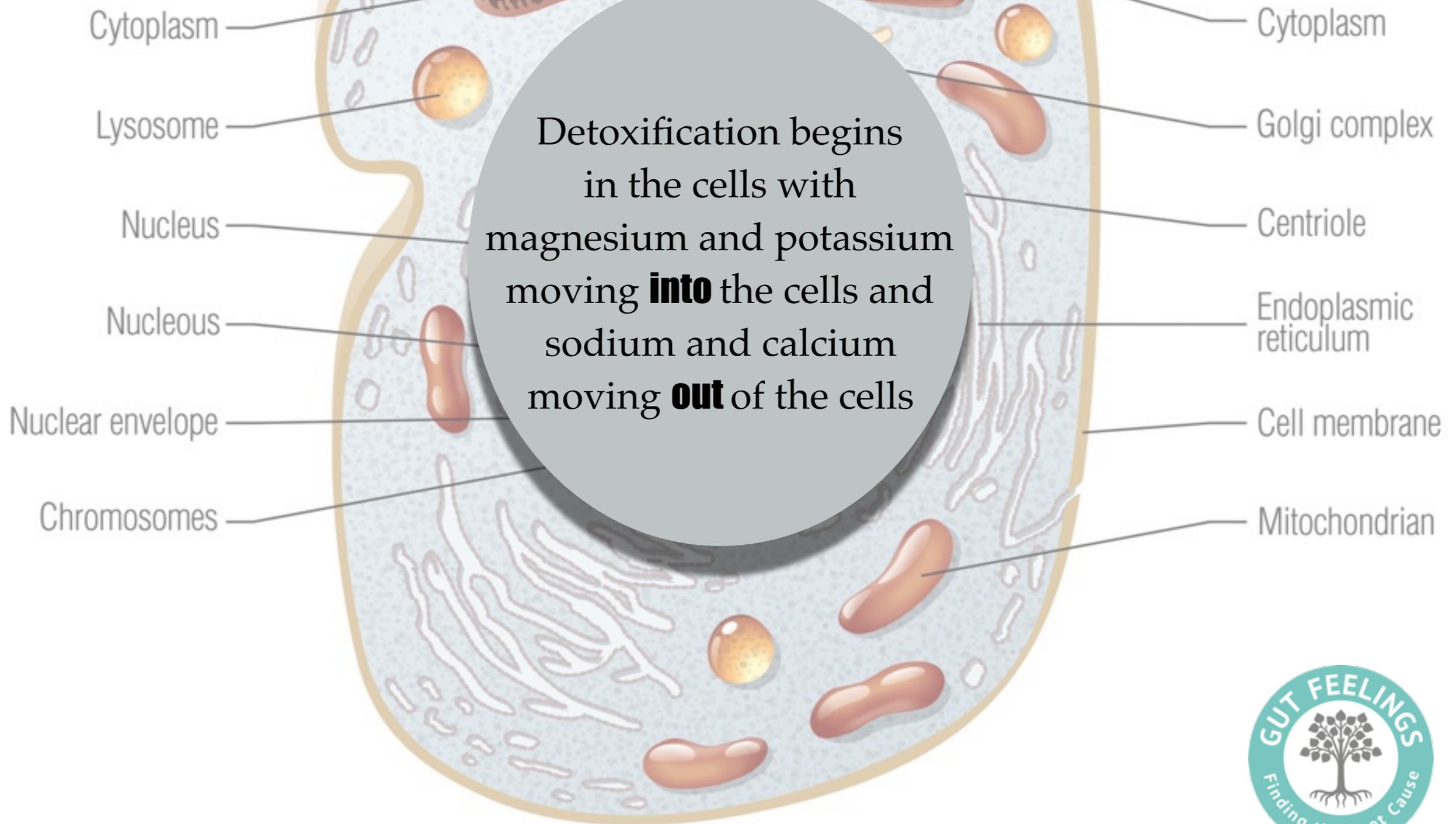
Excess calcium will reduce the absorption of magnesium, zinc, phosphorus and manganese. Excess phosphorus (often listed as 'phosphate' or 'phosphoric acid' in soft drinks) can restrict the uptake of many minerals

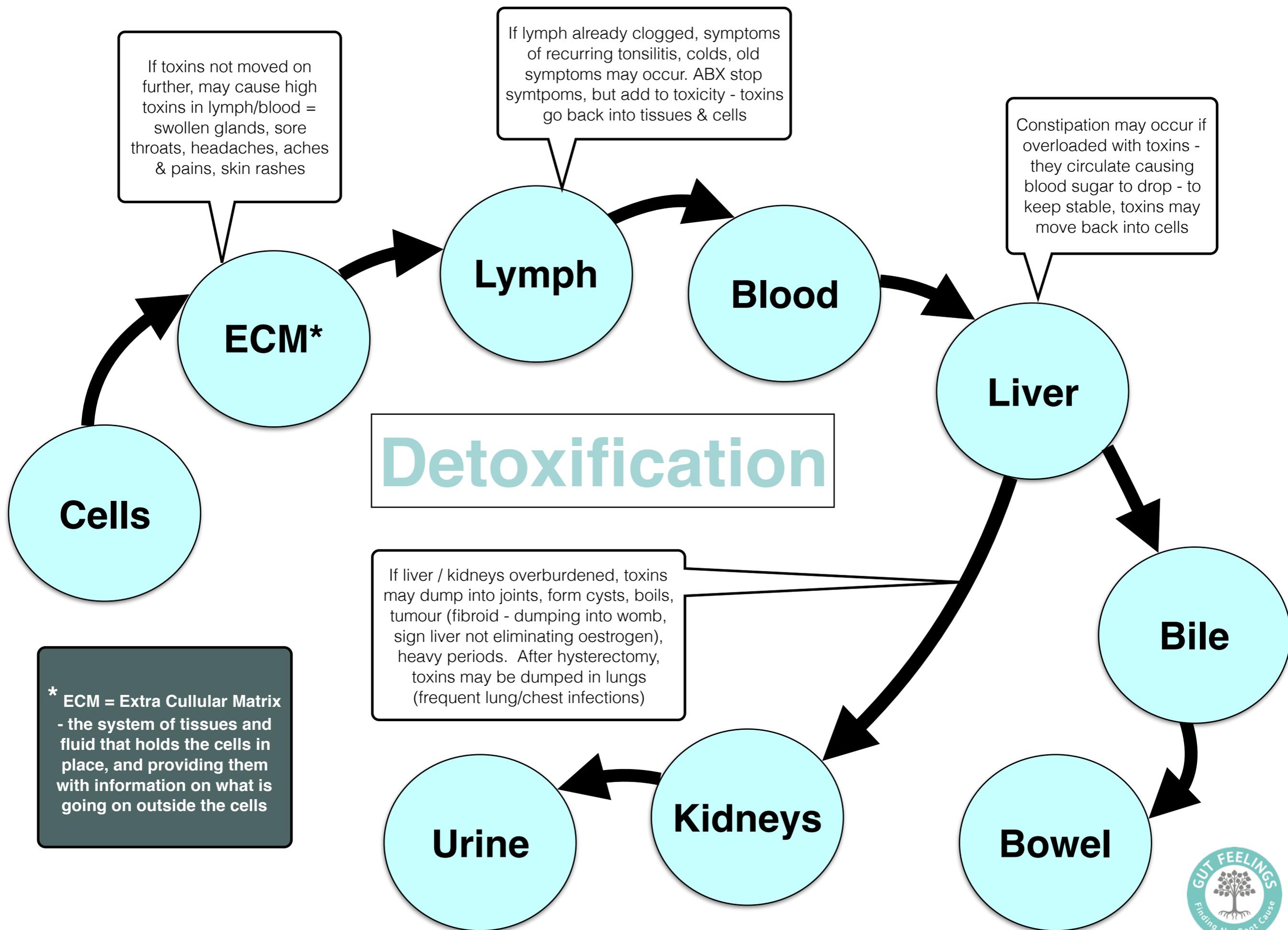
Tannins in **tea and coffee** (and some herbal drinks) may also inhibit the absorption of minerals when eaten with a meal

Low stomach hydrochloric acid (very common) may also contribute to malabsorption of minerals (see Stomach Acid Fact Sheet)



Detoxification





Cells

Hydration

Essential Fatty Acids

Eliminate diuretics

Correct electrolytes - restore alkalinity. Sodium-potassium balance +/-

Calcium-magnesium balance, Micro mineral balance

Gentle detox with nutrients, fasting

Address food intolerances

Vitamins/minerals (Mg) to restore Vitality/ATP

Reduce stress, stop toxin input/exposure

Energetic therapies, Rest, Meditation

Oxygen - breathing, yoga, tai chi

Lifestyle / diet changes

Time with friends/family

Nature, daylight

ECM

-> Lymph

Gentle exercise, Rebounding

Trampolining, Skipping, yoga,

posture, breathing, meditation

Massage, Reflexology

Skin Brushing, Rest

Saunas/sweating

Hot/Cold showers

Blood

EFAs, Hydration

Vascular health support

Vitamin K2-D3 for correct calcium absorption (prevention of arterial plaque). Circulation (sweat),

exercise, saunas. Green tea,

ginkgo biloba, cayenne, olive

leaf, hawthorn, fermented

foods/Natto (K2)

Skin

EFAs

D3/K2, Biotin

Zinc

Lungs

Mg, D3/K2, Steam

inhalation, salt

water pipe

Liver -> Bile

Balance blood sugar

Sulphurous/cruciferous vegetables

Protein, Wholegrains

P1: Milk thistle, turmeric, folic acid, glutathione, Vits

B2, 3, 6, 12. P2: Methionine, Mg, Glutathione, Vitamins

B5, 12, C, cystine, choline, taurine, glutamine, glycine.

Hemp & olive oils Antioxidants. Dark fruits / seeds-flax /

garlic / carrots artichoke, asparagus, bio live yogurt

Hot water & lemon AM, Castor oil packs, enemas

2 litres daily pure water

Herbal (dandelion, nettle) & green tea

Kill off pathogens - while supporting liver

Epsom salt baths (sulphation)

Reduce red meat, milk, cheese, sugar, wheat/

gluten, processed carbs, alcohol, heated/

processed oils, caffeinated drinks

Kidneys

Hydration

Electrolyte balance

Blood sugar balance

Warming herbal teas/nettle

Mg, B Vitamins

Weight management

Anti-inflammatory diet

Reduce stress, NSAIDs,

diuretics

Bowel

Hydration

Increase transit - soluble

fibre, Mg, Vit C.

Cleansing herbs,

Vit D3/K2

Exercise

Healthy bowel flora

Pre & Probiotics

Symptoms of Sodium Excess

PMT

Irritability

Headaches over the eyes

Sensitivity to the sun

Sinus and chest problems (esp. men)

Hayfever

Swollen legs - worse then lying down / putting feet up

General puffiness and swelling of lower abdomen

Aching muscles and joints

Difficulty sleeping

Itchy skin

Greasy skin, dandruff

Desire for salt / salty foods

Frequent colds

Loss of calcium from bone, possible deposition in tissues

Lack of concentration (esp if calcium affected)

Feeling very well, or very bad by the sea

Passing water frequently prior to 11am

Heavy periods or miscarriages



It is important to also consider essential fatty acid balance, as oil holds water in place in the body, thereby helping with hydration

Addressing any blood sugar imbalances and adopting a healthy diet first may assist with absorption (read Blood Sugar Balance Facet Sheet)

Reduce heated vegetable oils (including olive oil, avocado, rapeseed, corn, sunflower), fried foods, spreads, margarines and vegetable oils in processed foods (often hidden, so get into the habit of reading and understanding food labels)

Start by increasing omega 3-rich foods such as SMASH (sardines, mackerel, anchovies, salmon, herring), walnuts, flaxseed, hempseed, chia seeds, green leafy vegetables, and other healthy fats such as avocado, nuts, seeds, coconut oil, olive oil, grass fed dairy, grass fed meat, ghee, free range eggs



Toxins



Toxins

- Toxins are substances that are not needed in body and the body tries it's best to deal with them, to block them, or to filter them out through the liver and the kidneys via extretion
- Like a fortress, the body has barriers to try and stop toxins from entering the body: -

The Skin

Stomach Acid

Mucus membranes

The gut wall

The blood brain barrier

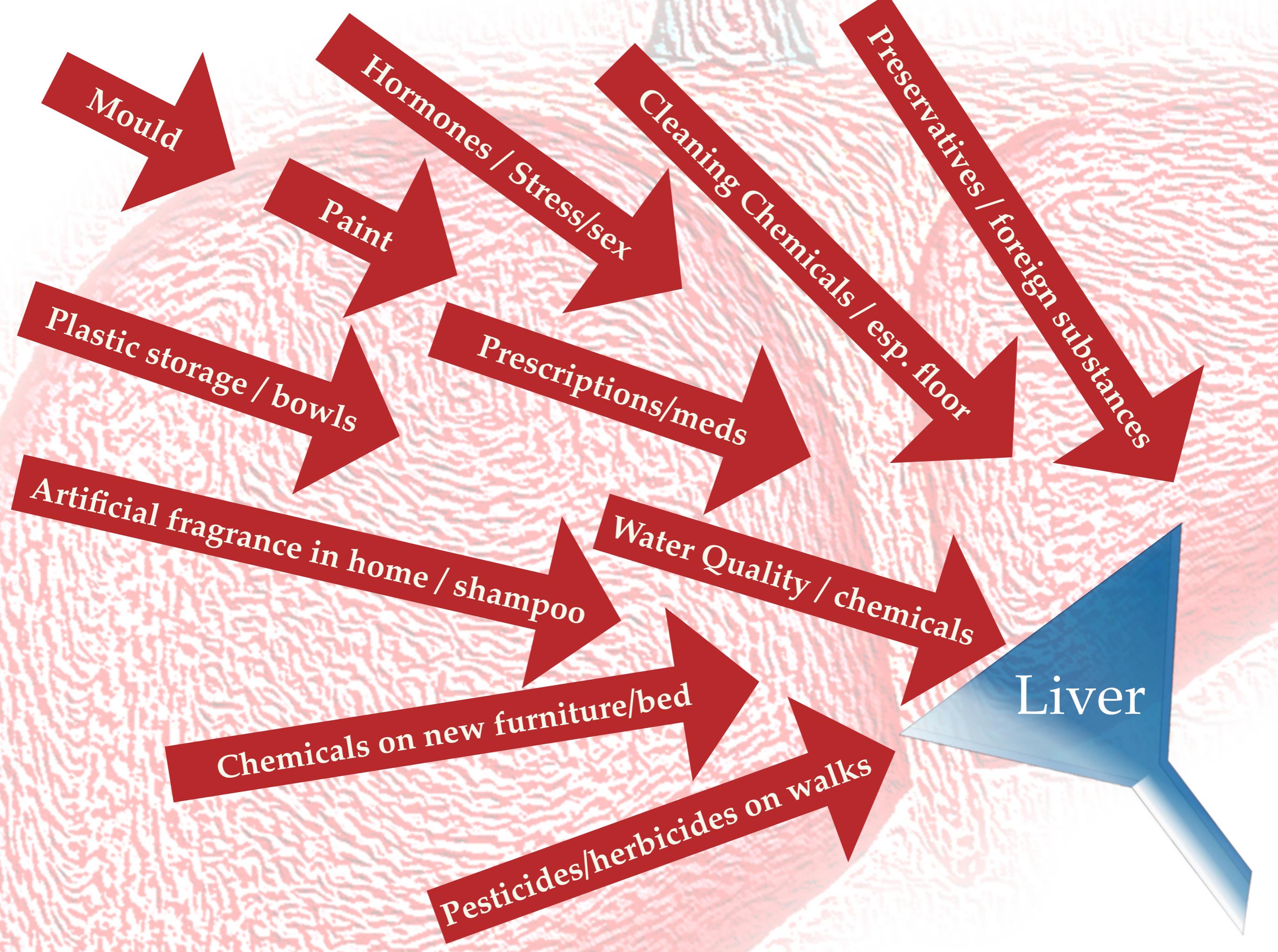


TOXINS

Physical Factors	Weather changes, climate, irradiation, noise, radioactivity, electromagnetic pollution and interference fields.
Chemical factors (inorganic and organic)	Contaminants in air inside and outside, from air conditioners, volatile organic compounds from adhesives, floor coverings, insulation, industrial toxins, packaging materials, flame-retardant materials, paints, wallpapers, air fresheners, fragrances. Personal care/beauty products, cosmetics, water, plastics, pesticides, preservatives, additives, food colouring, artificial sweeteners, artificial flavours. Cleaning products, dust (carpets, paper, cigarette smoke), oxone, gases, dioxins, chemicals, excess supplements, medications
Biological Factors	Fungi, bacteria, viruses, allergens, GMO foods
Psychological factors	Excessive stress, lack of challenge, social problems, loss of love, grief and bereavement, insults, fear of loss, lack of human communication, harrassment, relationship problems, pathological personality disorders. Stress causes acidity and adrenal problems

There are around 80,000 new chemicals in the environment since the 1900s. In humans almost half of us don't have the genes to detox these as well as others as we never needed to. We didn't need these detoxification genes when we were living in a clean environment. Now we do!





Mould

Hormones / Stress/sex

Cleaning Chemicals / esp. floor

Preservatives / foreign substances

Paint

Prescriptions/meds

Plastic storage / bowls

Artificial fragrance in home / shampoo

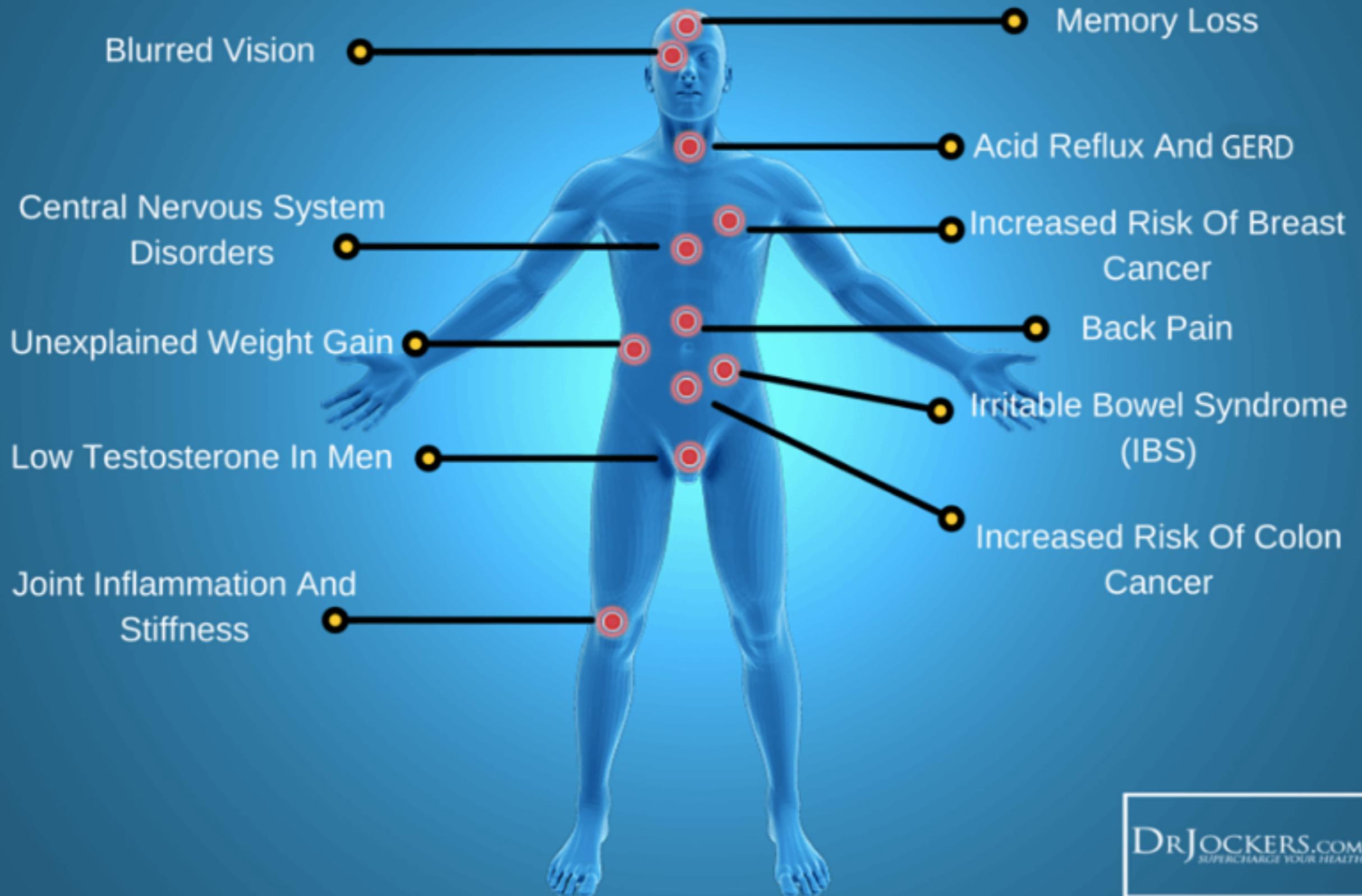
Water Quality / chemicals

Chemicals on new furniture/bed

Pesticides/herbicides on walks

Liver

Dangers of Toxic Deposits





Reduce Toxins

- Buy organic
- Use natural soaps (old processed with essential oils), shampoos (SLS free), shower gel, bubble bath, makeup
- Avoid artificial fragrances - perfumes, air fresheners, candles
- Use natural household cleaners - lemon juice, vinegar, bicarbonate of soda, eco cloths, eco laundry / dryer balls
- Choose less toxic paints and wallpapers
- Change toothpaste to flouride free
- Avoid using pesticides when gardening
- Reduce unnecessary over the counter medications



Environmental Toxins / Stressors

- *A mineral-deficient and, often toxic food supply.* According to the US Department of Agriculture, most food today contains one-fourth to one-tenth the levels of many nutrients as the same food item grown 100 years ago. This is due to the use of hybrid crops, superphosphate fertilizers, pesticides and other modern farming practices.
- *Diets of refined and often chemical-laden foods.* Most Westernized people eat mainly refined foods. These include bleached white flour, white sugar, canned and prepared items

Nutritional Balancing and Hair Mineral Analysis by Dr Lawrence Wilson



Environmental Toxins / Stressors

- *Unhealthy lifestyles and eating habits.* Many people live very unhealthy lifestyles. They stay up late, do not rest enough, do not balance activity and rest, and often have inappropriate eating habits
- *Levels of toxic metals and toxic chemicals in the air and water that are up to 1000 times higher than ever before in recorded history.* This has been well-documented by Dr. Henry Schroeder, MD and others

*Nutritional Balancing and Hair Mineral Analysis by
Dr Lawrence Wilson*



Environmental Toxins / Stressors

- *Dozens of serious viral and other infections that respond poorly to medical drugs.*
- *Levels of ionizing radiation never before seen in recorded history. This silent problem is extremely detrimental for our health. A major source in some areas is radon gas from the earth. However, the entire planet today is polluted due to atom-bomb tests, nuclear accidents, mining of uranium and other metals, medical and dental x-rays and scans, and the low-level, subtle emissions from nuclear power plants around the world.*

Nutritional Balancing and Hair Mineral Analysis by Dr Lawrence Wilson



Environmental Toxins / Stressors

- It is estimated that we are now exposed to 80,000 toxins regularly
- There are over 500 chemicals stored in the body
- The average individual has at least seven pesticides tested in their urine
- Some environmental toxins are easier to eliminate than others. The most challenging are the hydrophobic (fat-soluble) toxins and heavy metals. We take in many of these from industrial exposure, flame retardants, paint fumes as well as pesticides and herbicides.

- Dr Jockers



Phthalates

- Family of chemicals used to mould plastics
 - Many different types, most common is BPA (Bisphenol A)
 - Toxic chemicals that directly affect the brain
 - Affect the development of the brain and neural connections (wiring)
- Many different types, most common is BPA (Bisphenol A)
- Endocrine disruptors, particularly oestrogen

Long, but interesting, article on plastics and endocrine disruptors on PubMed by The Endocrine Society <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2726844/>



Endocrine-Disrupting Chemicals (EDCs)

- Numerous neurotransmitter systems such as dopamine, norepinephrine, serotonin, glutamate, and others are sensitive to endocrine-disrupting chemicals (EDCs)
- This point is important because it explains neurological effects of EDCs on cognition, learning, memory, and other nonreproductive behaviors, but it may also relate to reproductive neuroendocrine systems

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2726844/> - Endocrine-Disrupting Chemicals:
An Endocrine Society Scientific Statement



Formaldehyde

- Defined as a “probable carcinogen” *
- One of the oldest chemicals in the world
- Produced as a byproduct of fires, cigarette smoke and automotive exhaust
- Released from building materials such as particle board and carpet
- Used as a fixation product for pathology specimens and in embalming
- Used in hair-smoothing products, hair dye, nail polish
- Utilized in industrial and consumer products
- New clothing
- Non-iron sheets and clothes

*Classified as a Carcinogen category 1B “presumed human carcinogen” and germ cell mutagen category 2 (ECHA, European Chemical Agency)

<https://www.biosafety.be/content/contained-use-revision-classification-formaldehyd>

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3893912/>

<https://www.ncbi.nlm.nih.gov/pubmed/24335968>



Toxins

- New furniture, car, carpet smell = formaldehyde continually off-gas, so you could be inhaling them on a daily basis
- The flame retardant polybrominated diphenyl ethers (PBDEs) is particularly dangerous. Studies show PBDEs may contribute to health problems in people and pets
- Other flame-retardant chemicals include boric acid, a toxic respiratory irritant; antimony, a metal potentially more toxic than mercury; and formaldehyde, a well-known hazardous toxin
- Artificial grass (been linked to Leukemia in adults) - replace with real grass

- Dr Karen Becker



Toxins

- New houses are full of chemicals. Paint, wood, flooring, curtains, wallpaper, new furniture. As well as the stress of moving house, consider environmental toxins when moving house. Go away if you can after painting, or open all doors and windows. Choose environmentally non-toxic paints and wallpaper.
- Foam mattresses, beds, pillows, can contain high amounts of formaldehyde
- Lino flooring may contain toxic chemicals
- Use real wood, not MDF (glue used is usually urea formaldehyde)
- Painting your house - look for toxic free paint
- Toxic mould - is house damp, has there been a leak? Often in showers or under sink (mould likes wood to live on).

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3893912/>



Toxins

- Fragrance - candles, plug-ins, your own perfume, shampoo (and SLS), air freshners.
- Washing powder - use an Ecoball to wash clothes instead
- Cleaning products
- EMF (electromagnecic frequencies) - electrical wires, living near a phone cell or electric pylon. Disrupts our electrical systems - brain (neuron firing), heart (cardiovascular system - pacemaker in the heart)
- Store herbs, food in glass containers
- Food containers / drinking vessels - change to ceramic
- Water - microbes, pesticides, plastics, prescription medications, hormones, metals: chloride, fluoride. Get a good water filter water (Phox) - that also puts the minerals back.

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3893912/>



Toxins

If toxins and waste can't be removed through normal elimination processes - lymph, blood, liver, kidney - the build up can become too great for the body to handle. Several problems can arise, including:

- The body's attempts to remove the excess toxins through the skin, resulting in itchy, scaly, dry skin, eczema, psoriasis.
- The body tries to shed toxins and waste through mucous membranes, leading to eye discharge, teary eyes, or a runny nose.
- The body stores the overload of toxins in bone, tissues or fat to be handled later when the elimination pathways are working more effectively which can potentially lead to less-than-optimal health.



- Toxins all pass through the liver which may be able to process some of them into a form that the kidneys can excrete. If the liver is overburdened, some of these toxins may go back into the blood and are stored in fat
- The more toxins, the more fat the body may accumulate to accommodate toxins
- If the gut wall is permeable - leaky gut - these toxins may escape into the bloodstream, and have the potential to travel to the brain and contribute to neurological damage
- Low liver function that often accompanies low adrenal function also suppresses early morning hunger, when the liver is very congested, there may sometimes be an aversion to food in the morning



Pathways of elimination

Urine

Stools

Skin

Sweat

Breath



Systems of Elimination in this order

Lymphatic System

Blood

Liver

Kidneys

Skin

Lungs



Toxins that can contribute to toxic overload

Personal care products

Contain endocrine disruptors - hair gels, lotions, shower washes, face creams, cosmetics, toothpaste, deodorants, mercury fillings

Polluted / unfiltered water

Food additives

preservatives, food colouring, artificial flavours, artificial sweeteners, GMOs

Pesticides

Household toxins

Paint, rugs, building materials, fabrics, flame-retardants on furniture, and clothing, blankets, flooring, cleaning materials, sealants in cookware, plastic containers/BPA, cling film, cooking foil, tin cans. PFASs: water resistant materials, hospital equipment, sleeping bags, electronics, mobile phones, pizza boxes/fast food containers

Air pollution

Industrial toxins - fumes at petrol stations, heavy metals, radiation, traffic emissions, fracking

Medications
and excess supplements

Air Fresheners
and artificial fragrances



Chemicals found in Health and Beauty Products

Chemical	Purpose	Toxicity Example
Acrylates	Artificial Nails	Cancer, foetal damage
Aluminium	Antiperspirant	Controversial connection to Alzheimer's Disease
Phthalates - Dibutyl Phthalate (DBP)	Solvent and preservative for colouring agents and fragrances	Endocrine disruption, diabetes
Parabens	Preservative and fragrance	Endocrine disruption, breast cancer
Phenylendiamine ((C)+number)	Hair Dye	Derived from coal tar, resulting in a wide range of toxic contaminants
Quaternium-15 DMDM hyantoin, imidazolidinyl urea, etc.	Preservaties	Release formaldehyde, a known carcinogen
Triclosan	Antimicrobial	Endocrine disruption



Symptoms of an underfunctioning detoxification system

- Abnormalities of fats in the blood stream (increased LDL, elevated triglycerides)
- Arteries blocked with fats leading to high blood pressure, heart attacks and strokes
- Fatty liver and build up of fat in other organs
- Obesity and/or inability to lose weight
- Sluggish metabolism

Nervous system

- Anxiety
- Mood changes – anger, irritability
- Poor concentration, brain fog
- Overheating
- Recurrent headaches associated with nausea

Immune Dysfunction

- Allergies: sinus, hay fever, hives, asthma, dermatitis etc.
- Skin rashes and inflammations
- Chemical and food sensitivities
- Auto immune diseases
- Chronic fatigue syndrome and fibromyalgia
- Recurrent viral, bacterial and parasitic infections

Blood Sugar problems

- Craving for sugar
- Hypoglycaemia
- Mature onset diabetes is common in those with a fatty liver

External Signs

- Coated tongue
- Bad breath
- Red palms and soles
- Flushed facial appearance or excessive facial blood vessels (capillaries/veins)
- Acne, rosacea
- Yellow conjunctiva on the eyes
- Red swollen itchy eyes (allergic eyes)
- Dark circles under eyes
- Brownish spots and blemishes on the skin (liver spots)
- Rashes and itchy skin

Digestive problems

- Gall stones and gall bladder disease
- Intolerance to fatty foods
- Intolerance to alcohol
- Indigestion
- Reflux
- Nausea
- Abdominal bloating
- Constipation
- Irritable bowel syndrome
- Haemorrhoids

Muscular-skeletal system

- Rheumatism
- Arthritis



Toxins

- Pesticides / Herbicides in food and in nature on walks, particularly glyphosate - a “probable carcinogen” according to the World Health Organisation. Originally patented as an antibiotic, glyphosate destroys gut bacteria and mitochondria, (our ancient bacteria in cells that act as our powerhouses). Also an endocrine disruptor
- Heavy metals in fish - the larger the fish, the more likelihood of mercury - avoid tuna, et smaller fish (salmon, mackerel, herring, sardines, sprats), limit fish to maximum of 2 times a week

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3893912/>



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Muscular-skeletal system

- Rheumatism
- Arthritis



Environmental Toxins / Stressors

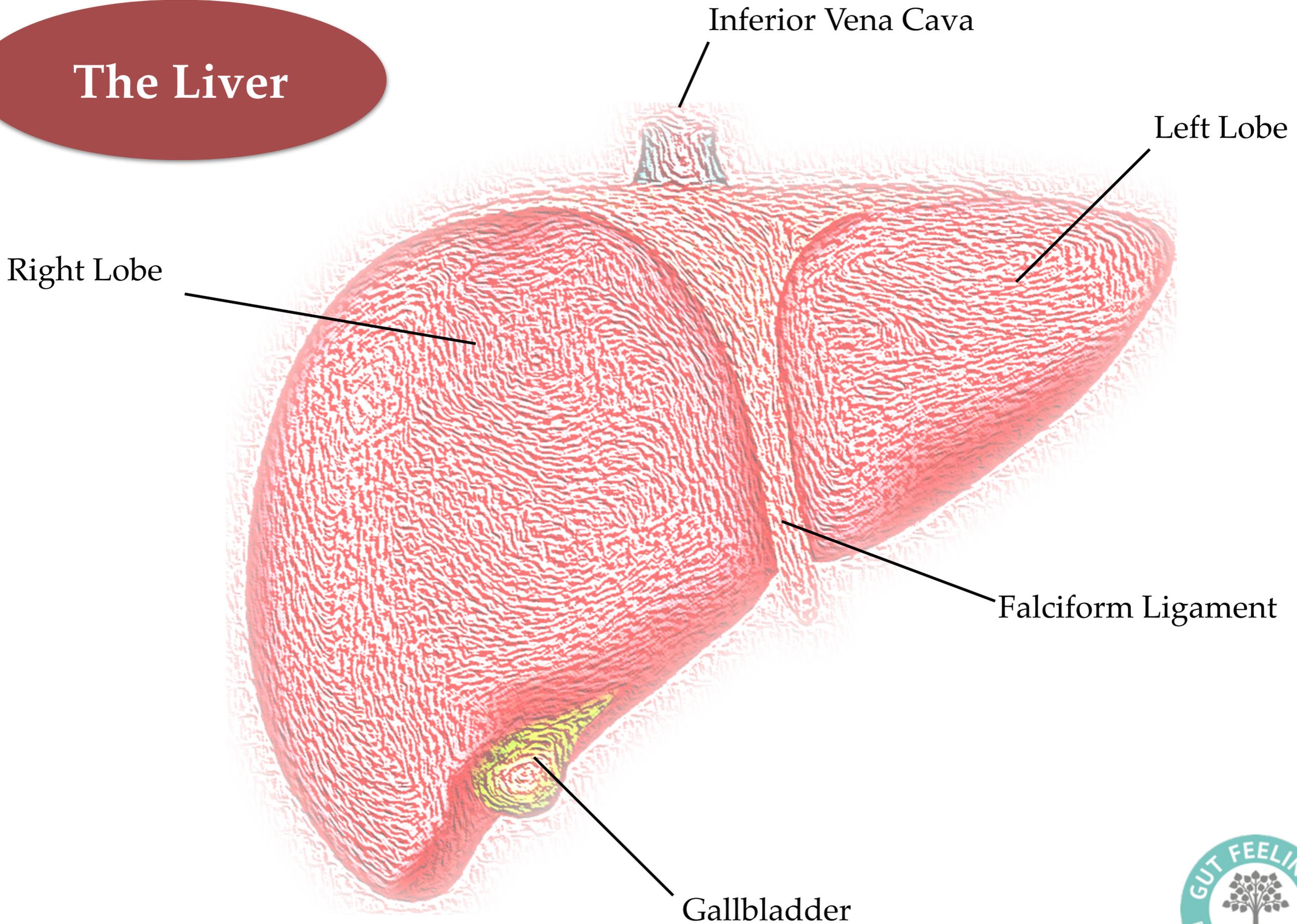
- Environmental toxins can increase stress on the body, the liver, the body's filter, in particular.
- The body has to work extra hard to remove toxins that are totally alien to it, and for which it was not designed to eliminate. The more toxins we have to deal with, the more glutathione (the liver's antioxidant) is used up.
- We can do a lot to reduce the toxic load on the body and the liver



The Liver - the filter



The Liver



Inferior Vena Cava

Left Lobe

Right Lobe

Falciform Ligament

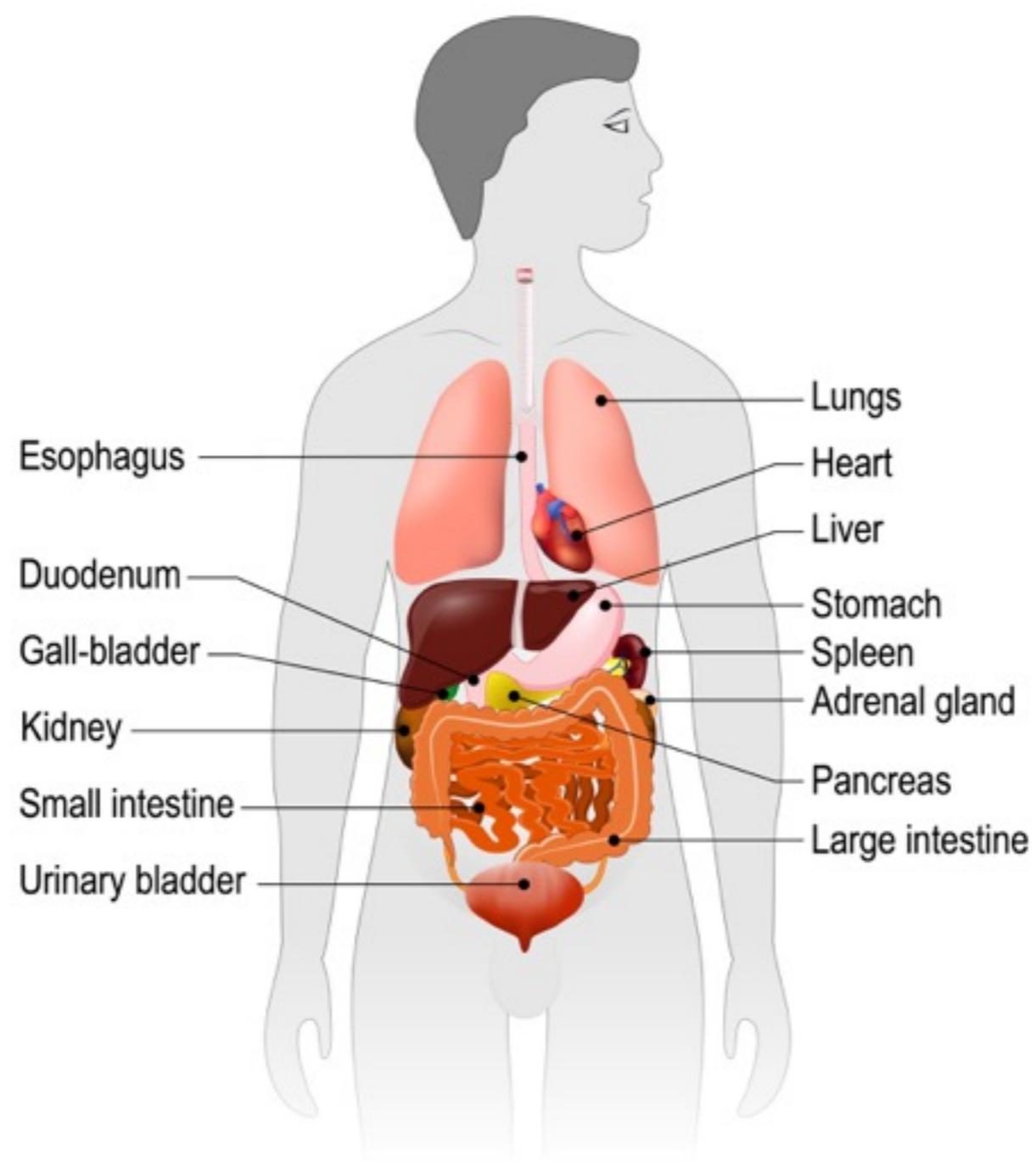
Gallbladder



The **liver** is the largest solid internal organ and the only organ that can regenerate

HUMAN ANATOMY

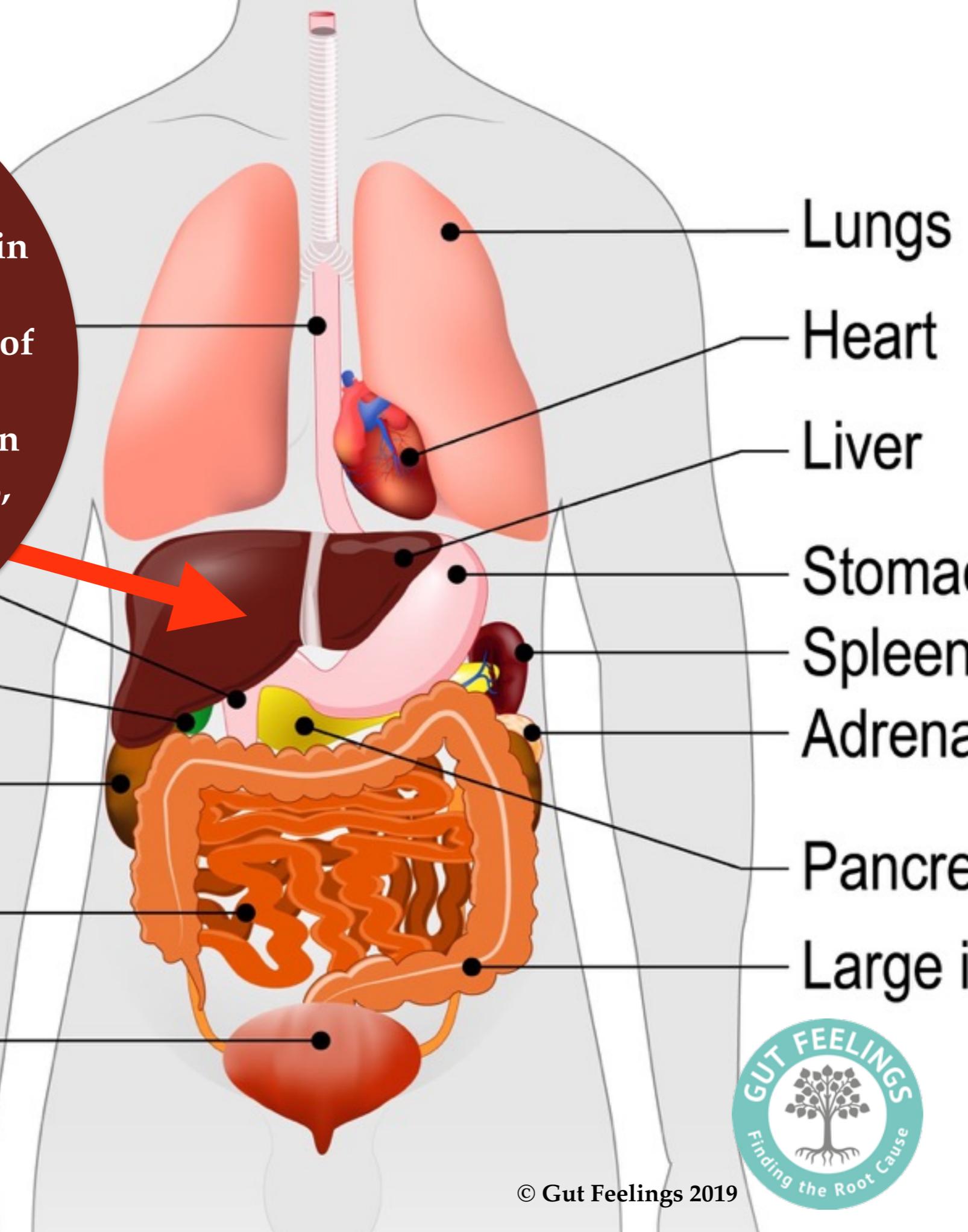
It provides functions essential to life and carries out over 500 essential tasks



It Manufactures over 13,000 chemicals and enzymes



It has numerous functions including production of bile, protein synthesis, fat and carbohydrate metabolism, detoxification, storage of nutrients, supports blood sugar regulation, makes and breaks down hormones, recycles red blood cells, processes all food and nutrients



Lungs

Heart

Liver

Stomach

Spleen

Adrenal

Pancreas

Large intestine

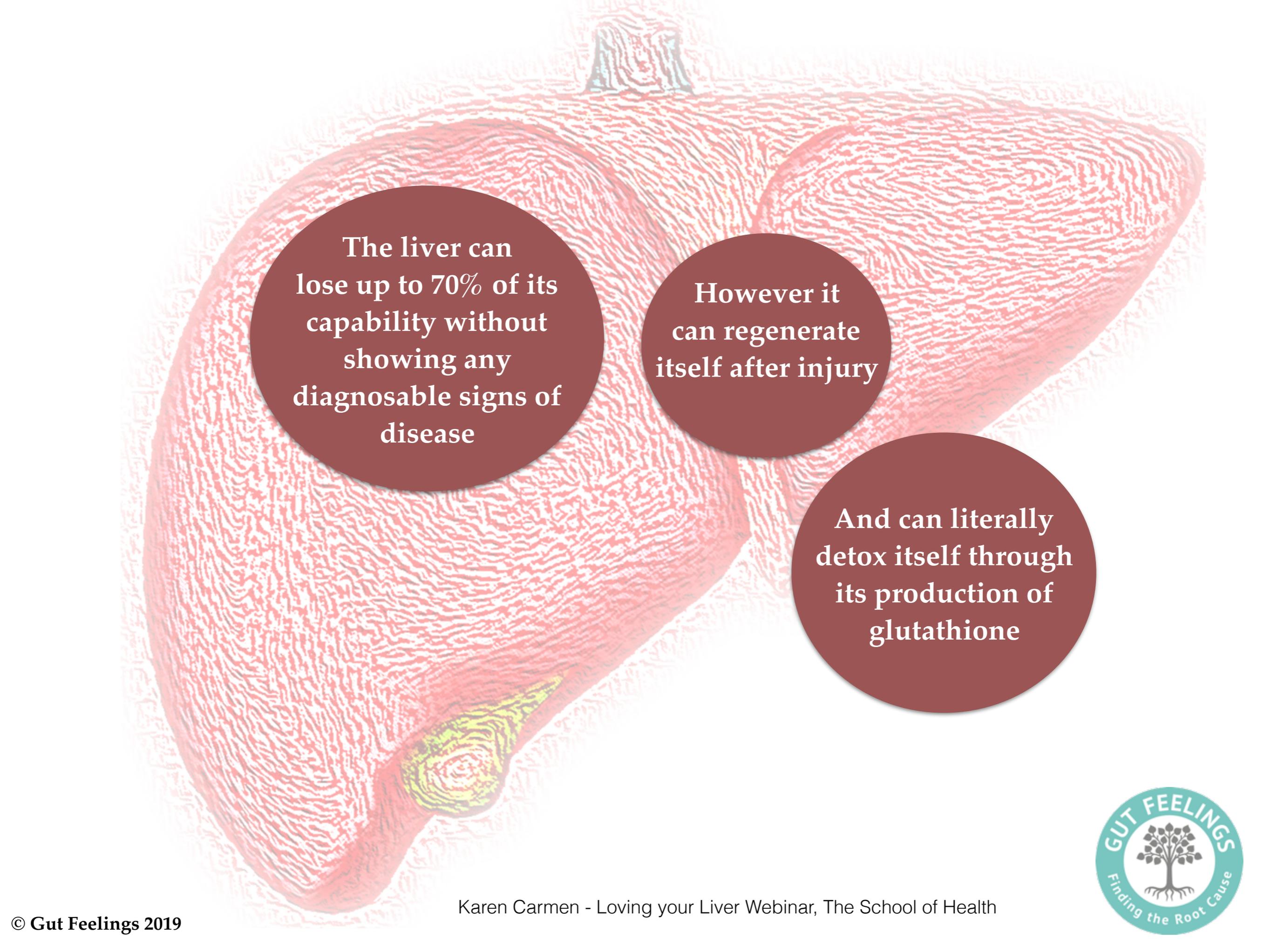
Gallbladder

Kidney

Small intestine

Urinary bladder





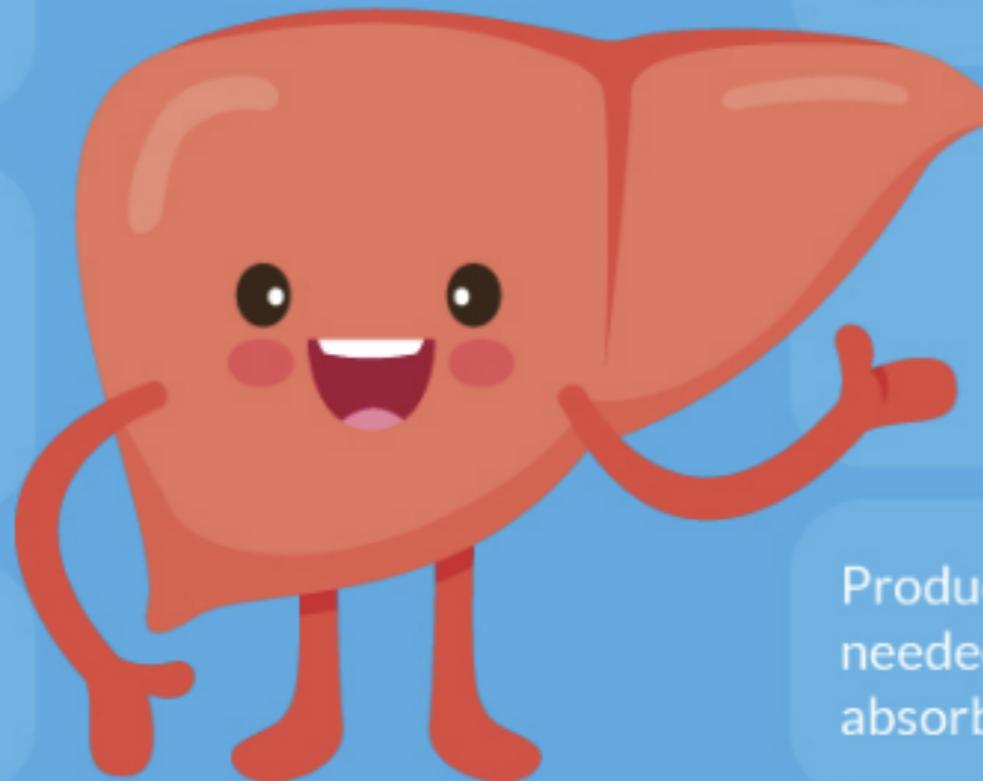
The liver can
lose up to 70% of its
capability without
showing any
diagnosable signs of
disease

However it
can regenerate
itself after injury

And can literally
detox itself through
its production of
glutathione

Liver Functions

DRJOCKERS.COM
SUPERCHARGE YOUR HEALTH



Helps your body fight infection by removing bacteria from the blood.

Converts inactive Thyroid Hormone (T4) to active T3 that the cells can use.

Metabolizes, or breaks down, nutrients from food to produce energy, when needed.

Creates ketone bodies for cellular energy production.

Produces most of the substances that regulate blood clotting.

Removes potentially toxic substances we consume from the environment such as Xenoestrogens, Pesticides/Herbicides and Medication byproducts.

Prevents shortages of nutrients by storing vitamins, minerals and sugar.

Produces most proteins needed by the body.

Creates cholesterol for hormone production and tissue healing.

Produces bile, a compound needed to digest fat and to absorb Vitamins A, D, E and K.

Vitamins
D, D, E, K, B12,
iron, copper,
magnesium,
sugar

B12 - 5-7 yrs
Vitamin A - 4 yrs
Vitamin D - 4 mths

Toxins

- No matter the source, toxins and chemicals can accumulate in the body
- If young and healthy, the body can typically clear away many toxins and wastes through the natural detoxification systems - the liver and kidneys
- Using a two-phase system, the liver performs the biggest detox job of all
- Phase I breaks down environmental toxins and wastes in the body
- Phase II neutralizes and prepares toxins for excretion
- To support both phases of detoxification, the body requires an adequate supply of nutrients, antioxidants, and cofactors. At the same time, many of those same nutrients help protect against free radical damage

Dr Karen Becker

https://products.mercola.com/healthypets/liver-kidney-support-for-pets/?utm_source=petsnl&utm_medium=email&utm_content=dpe&utm_campaign=20190421Z2&et_cid=DM282861&et_rid=59687550



Phase I Detoxification: Transformation

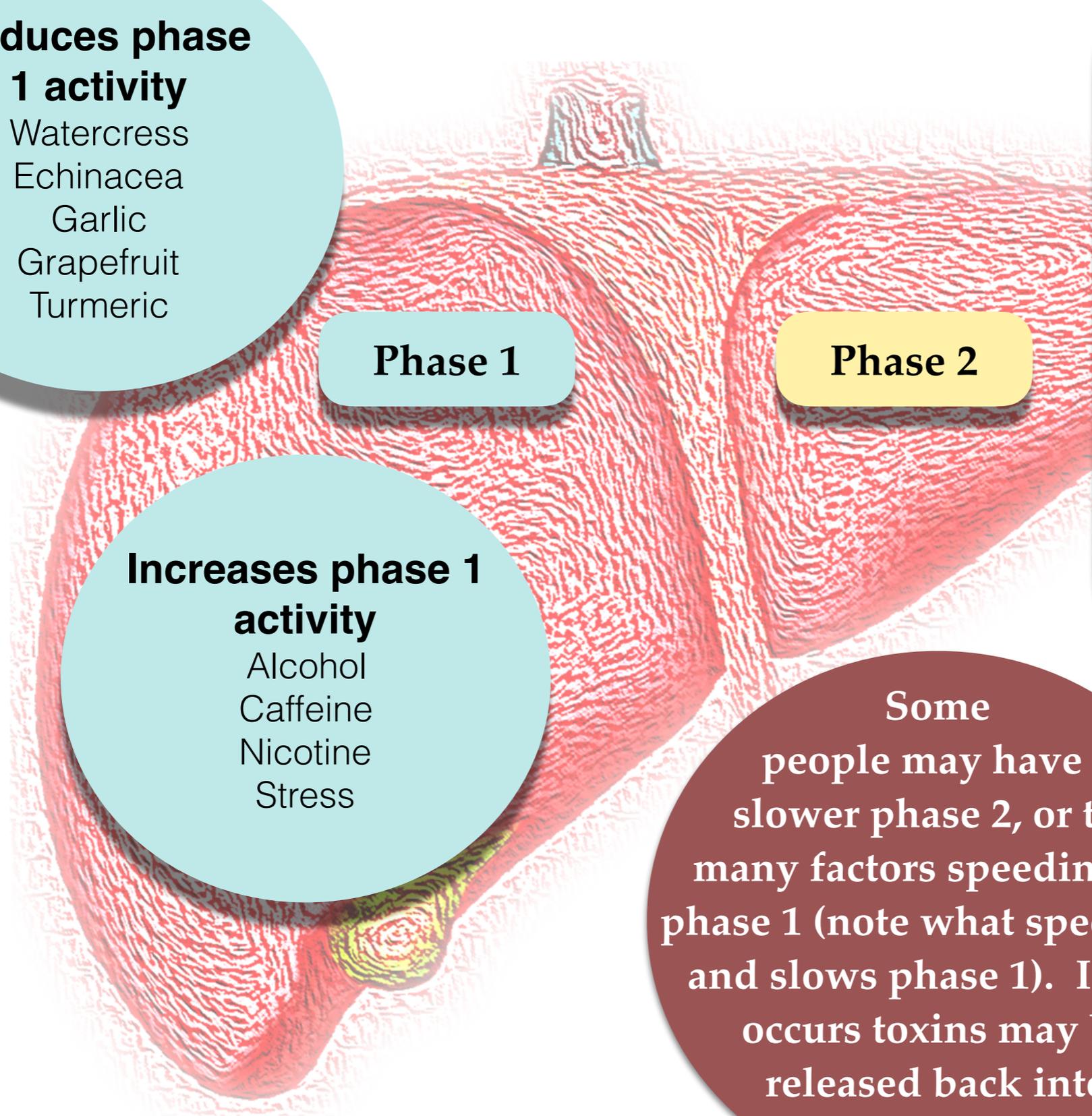
Enzymatic reactions transform a toxin into a chemical form that can be metabolized by the phase II enzymes. These reactions are particularly carried out by the cytochrome P450 (CYP) enzymes in the liver

This phase is dependent upon adequate protein, vitamin A, B2, B3, C, E, folate, iron, calcium, copper, zinc, magnesium, selenium. Deficiencies in these nutrients slow the transformation of specific toxins. The top threats to these deficiencies include blood sugar imbalances, a deficient diet and poor gut function that hampers nutrient absorption.

Dr Jockers

<https://drjockers.com/improve-detoxification-system/>





Reduces phase 1 activity

Watercress
Echinacea
Garlic
Grapefruit
Turmeric

Phase 1

Increases phase 1 activity

Alcohol
Caffeine
Nicotine
Stress

Phase 2

Increases phase 2 activity

- Milk Thistle
- N Acetyl Cysteine (phase 2 methylation)
- Calcium D Glucarate (glucoronidation pathway)
- Glutathione (glutathione pathway)
- B6, B12, Folate
- Protein rich foods - beans, peas, nuts

Some people may have a slower phase 2, or too many factors speeding up phase 1 (note what speeds up and slows phase 1). If this occurs toxins may be released back into the body



Phase 2 Detoxification:

These reactions conjugate the toxin to other water soluble substances to increase its solubility. The major enzymes catalyze a different form of conjugation reaction (5):

The anti-oxidant potential of glutathione also clears out free radicals in this phase

The most important nutrients to effectively complete phase II detoxification include all the **B vitamins and in particular B6, folate and B12** which are known as the bodies major methyl donors. Sulfur containing amino acids such as methionine and cysteine are also extremely important for this phase. Magnesium is also extremely critical for sulfonation, glucuronidation and glutathione conjugation reactions.

Dr Jockers

<https://drjockers.com/improve-detoxification-system/>



Toxins

(Fat-soluble)

- Metabolic end products
- Micro-organisms
- Contaminants/Polllutants
- Insecticides
- Pesticides
- Food Additives
- Alcohol
- Drugs

Waste Products

(Water-soluble)

Phase 1

Phase 2

Eliminated from the
body via:

Gall Bladder Kidneys

Bile Urine

Stool



Fat-soluble

Toxins

Water-soluble

Waste

Phase 1

(Cytochrome P450 Enzymes)

- Oxidation
- Reduction
- Hydrolysis
- Hydration
- Dehalogenation

Intermediary Metabolism

Phase 2

(Conjugation Pathways)

- Sulfation
- Glucoronidation
- Glutathione Conjugation
- Acetylation
- Amino Acid Conjugation
- Methylation

Eliminated Via:

- Urine
- Bile
- Stool

Nutrients Needed

- Vitamins B2, B3, B6, B12
- Folic Acid
- Glutathione
- Flavanoids
- Protein
- Carotenoids
- Vitamin E, C, Zinc

Nutrients Needed

- Methionine
- Cysteine
- Magnesium
- Glutathione
- Vitamins B5, B12
- Vitamin C
- Glycine
- Taurine
- Glutamine
- Folic Acid
- Choline



MTHFR Gene

- It is not just the exposure to toxins, but our ability to detoxify - to get rid of the toxins that is important also.
- Methylene tetrahydrofolate reductase (MTHFR) is a gene responsible for producing an enzyme that converts folic acid to methylfolate, a bioavailable form of vitamin B9. Nutrient deficiencies of Vitamin B6, B12, and folate increase homocysteine levels which causes inflammation in the body. The ability of this gene to turn this switch on or off is crucial for the production of glutathione, the body's most important antioxidant.
- The MTHFR gene is conserved in human, chimpanzee, Rhesus monkey, cow, mouse, rat, chicken, zebrafish, C.elegans, S.cerevisiae, K.lactis, E.gossypii, S.pombe, M.oryzae, N.crassa, A.thaliana, rice, and frog.

<https://www.ncbi.nlm.nih.gov/gene/478230>



Relax and take breaks

- Keep a relaxed pace, even at work and in other activities that you enjoy
- When sitting at a desk, stand up every 20-40 minutes, move around, stretch gently and breathe deeply. Watch how cats and dogs stretch often and gently. This is not the same as vigorous stretching, which can easily cause muscle or ligament damage

- Dr Lawrence Wilson



Computer / EMFs

- All computer screens and other parts of the machine give off harmful electromagnetic fields or EMFs
- Sit as far away from computers as possible. Enlarge the typeface so you can sit further away
- Use a remote keyboard with a laptop computer so you can sit further away, particularly important if you use a computer for long periods
- Move away from your computer at least hourly (more if possible) - set an alarm to remind yourself
- When you get up, ideally go outside in the sun for a few minutes, or leave the room and walk around. Sunshine negates some of the harmful computer EMFs
- A single reddish, 250-watt heat infrared lamp from a hardware store (or Amazon) shining partly on you may also reduce the effects of electronic devices on the body

- Dr Lawrence Wilson



TVs and cell phones

- Sit back from the television. Backlight large- screen TVs apparently emit the least harmful EMFs.
- Spend as little time as possible on cell phones / portable phones.
- Try to use a headset or a speakerphone to keep the rays away from your head (if you read the small print, manufacturers actually recomend this, and specify the minimum distance you should keep their phone away from your body). Short 5 minute phone calls are likely to be OK
- Avoid Bluetooth headphones which trials have indicated may contribute to brain tumors (schwannomas)

- *Dr Lawrence Wilson*



Home and Work

- Rural areas are often healthiest due to a higher oxygen level, less noise, reduced electromagnetic stress and, at times, safer neighborhoods
- Note whether you are near cell phone towers or a major power generating station, as these emit powerful negative electromagnetic fields. This might not be easy as they can be disguised as trees, posts and other common objects
- Walk or drive around - are there any industrial areas with potential high pollution nearby, chemical plants, factories, sewage plants, areas of high pesticide spraying?

- Dr Lawrence Wilson



Empowerment

Taking Charge

- *Dr Lawrence Wilson*

Victims are powerless and are out of control of their lives. They have handed over their powers to others

Most victims are angry and resentful and usually unforgiving. This combination of feelings and attitudes contributes to physical and mental illness

In contrast, taking for responsibility for everything in your life **empowers** you

Then, if a problem develops, you can definitely help solve it

It may take a while to explore new choices, but you have the ability to make them

As a fully empowered being, you have the power to forgive and move on, so letting go of anger and resentment are much easier



Positive Thought

- Dr Lawrence Wilson

Negative thoughts are toxic. If positive thought doesn't come naturally, **practise** and it will eventually become a way of life. Focus only on the positive and reduce the negative

Gently let go of friends and work situations that expose you to those who are coarse, angry, negative, selfish, and situations that make you feel drained

Miracles do happen if one can allow them into one's thoughts

Stop following the news for a while, which is mostly negative

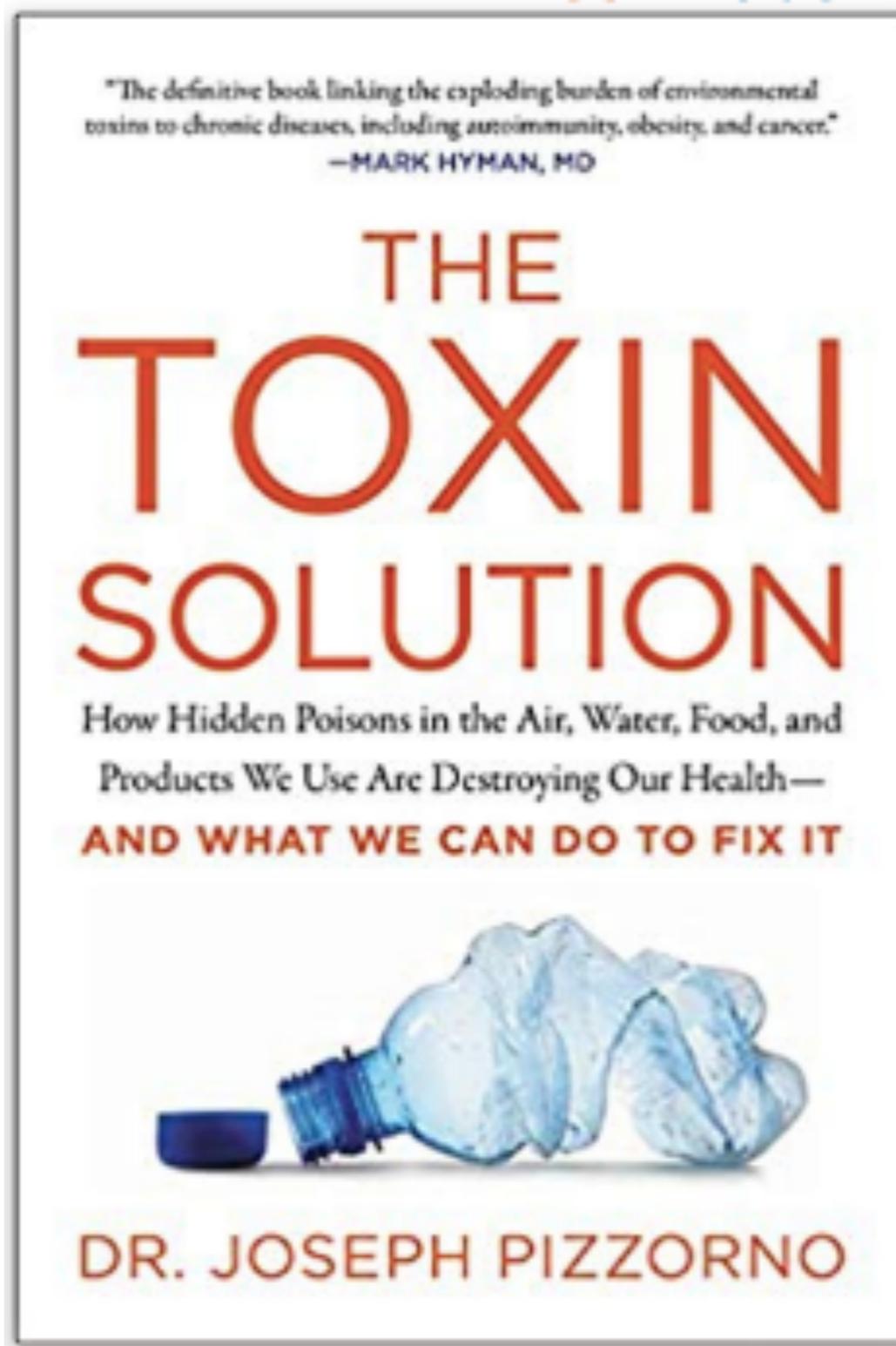
Avoid inferring and implying negative outcomes when you really don't know the truth

Let go of naysayers in your life and cultivate friends and colleagues who tend to be happy and more upbeat

Spend time with people that make you laugh, who are upbeat, watch funny films, read uplifting books



The Toxin Solution
by Dr Joseph Pizzorno

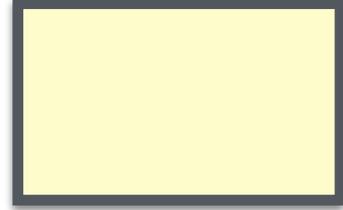


Urine Colour Chart



NO COLOUR - TRANSPARENT

You are drinking a lot of water, if may be appropriate to drink less



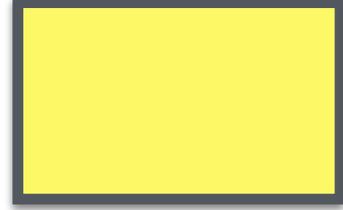
PALE STRAW COLOUR

Normal colour, well hydrated



TRANSPARENT YELLOW

Normal



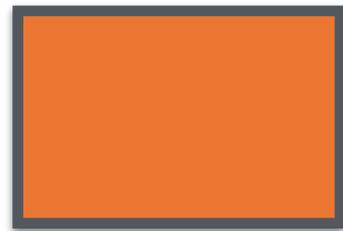
TRANSPARENT YELLOW

Normal, but you may need drink some water soon



AMBER OR HONEY

It is likely that your body is not getting enough water. Hydrate now



SYRUP OR BROWN ALE

Your body is not sufficiently hydrated. Hydrate now
Seek medical advice if colour persists *

Urine may have a variety of colours throughout the day. Normally it ranges from a light straw colour, to a deep amber or honey colour, with many variations in between. The colour can tell you a great deal about your body. This chart gives an indication of what hydration levels might be in the body at a given time.



* Some medications, laxatives, chemotherapy drugs, supplements (particularly B Vitamins which can make urine bright yellow) can change the colour of urine. Some foods such as beetroot can temporarily turn urine pink.

BRISTOL STOOL Chart



Slow
transit



Type 1 Separate hard lumps, like nuts (hard to pass)

Very constipated



Type 2 Lumpy and sausage-like

Slightly constipated



Type 3 Sausage shape with cracks on the surface

Normal



Type 4 Like a sausage or snake, smooth and soft

Normal



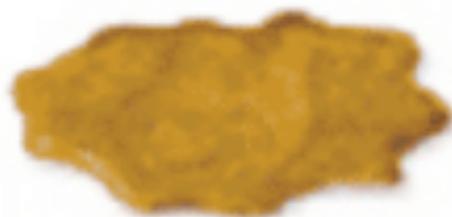
Type 5 Soft blobs with clear-cut edges, passed easily

Lacking fibre



Type 6 Mushy consistency, fluffy with ragged edges

Inflammation



Type 7 Liquid consistency, watery with no solid pieces

Inflammation

Rapid
transit



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- Anxiety
- Mood changes such as anger and irritability
- Poor concentration and “foggy brain”
- Overheating
- Recurrent headaches associated with nausea

Immune dysfunction

- Allergies: sinus, hay fever, hives, asthma, dermatitis etc.
- Skin rashes and inflammations
- Chemical and food sensitivities
- Auto immune diseases
- Chronic fatigue syndrome and fibromyalgia
- Recurrent viral, bacterial and parasitic infections

Hormone Balance

- Intolerance to HRT
- More severe hot flushes
- More severe PMS/PMT

Musculo skeletal system

- Rheumatism
- Arthritis



Symptoms of an under functioning detoxification system

Blood sugar problems

- Cravings for sugar
- Hypoglycaemia
- Mature onset diabetes is common in those with a fatty liver

External Signs

- Coated tongue
- Bad breath
- Red palms and soles
- Flushed facial appearance, or excessive facial blood vessels (capillaries / veins)
- Acne, rosacea
- Yellow conjunctiva on the eyes
- Dark circles under eyes
- Brownish spots and blemishes on the skin (liver spots)
- Rashes and itchy skin

Digestive Problems

- Gall stones and gall bladder disease
- Intolerance to fatty foods
- Intolerance to alcohol
- Indigestion
- Reflux
- Nausea
- Abdominal bloating
- Constipation
- Irritable Bowel Syndrome
- Haemorrhoids



Food to support the liver and gall bladder

- Beetroot, radish and watercress stimulate bile release from the gall bladder
- Sulphurous vegetables supply sulphates for phase 2 detoxification; kolrabi, turnip roots, broccoli, cabbage, Brussels sprouts. However, they can be very gas-producing - if you experience excess gas after eating them, avoid.
- Turmeric is protective to liver cells, but will slow down phase 1 detoxification (see previous graphic). This is only necessary if phase 2 is compromised in any way (such as in Gilbert's syndrome) or phase 1 is over active.
- Onions, garlic, carrots, artichoke and asparagus. (garlic can cause nausea if phase 2 is compromised. Asparagus will cause strong smelling urine if phase 2 is compromised.)
- Dark fruits e.g. black grapes, blueberries, blackberries are said to stimulate the flow of liver energy
- Ground flaxseeds, pumpkin, sunflower and sesame seeds
- Hemp oil, olive oil, unheated
- Bio live yogurt (preferably goat's milk yogurt)
- Protein for the detoxification process - vegetable sources from beans, peas and lentils
- Wholegrains (not wheat) e.g. oat porridge, brown rice, quinoa, millet, ryvita, oatcakes, spelt pasta and rye bread (keep the gluten grains to minimum)
- Snack on low sugar fruits such as apples, pears and berries, raw vegetables, nuts (a small handful at a time) and seeds such as pumpkin seeds
- Drink hot water with lemon juice first thing in the morning.
- WATER - drink 1.5-2 litres of filtered or bottled water daily (at body temperature), green tea and herbal teas such as nettle, dandelion, hibiscus.

The following foods can hinder liver detoxification

Red meat, milk, cheese, sugar, wheat / gluten, all processed carbohydrates e.g. cakes, biscuits, white bread, pasta, pizza, alcohol, fried foods, heated oils, caffeinated drinks (tea, coffee, all sodas inc. diet)



Hydration

The most important nutrient in the body

Low levels taxes the heart by increasing heart rate to pump water faster for sufficient oxygen to muscles

Required for enzyme action and stomach acid which breaks down protein

Lubricates joints - sinuvial fluid and cartilage - may lessen aches and pains such as rheumatic, back, sciatic pain

Promotes good memory

Low levels may contribute to dry stool and constipation

May stop feelings of hunger

When starved of water, the body perceives a threat to survival and holds on to every drop - retained water shows as swollen feet, legs and hands

May help ease digestive discomfort

Clears toxic waste from the body, carrying it to the liver and kidneys and removal through urine and stool

Inadequate hydration may contribute to polluted bowel and poor kidney elimination, potentially overburdening the liver and further increase of toxic load

We are dehydrated before we feel thirsty or have a dry mouth

Transportation of nutrients is impaired when dehydrated

The best way to prevent fluid retention is to drink appropriate water

Low levels promote production of histamine which helps control water levels

Required to create protective mucosal layers including gut lining

Low levels may contribute to skin disorders as toxic waste accumulates

Dehydration promotes vascular tightening - hypertension

Aim for around 1.5 to 2 litres pure filtered or bottled water a day

Promotes cellular repair

May help lessen addictive urges, including caffeine, alcohol, certain drugs

Helps maintain core body temperature

May increase fatigue, headaches



The Miracle That Is Water

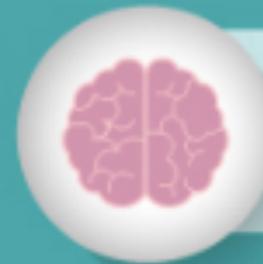
What does water do for the human body?

Dehydration taxes the heart by causing it to pump faster to get sufficient oxygen to your muscles



Water is essential for the body to sweat and release toxins

Prevents loss of memory as you age. Lessens addictive urges, including caffeine, alcohol and certain drugs



Allows red blood cells to carry oxygen more efficiently, resulting in better muscular function and increased mental acuity



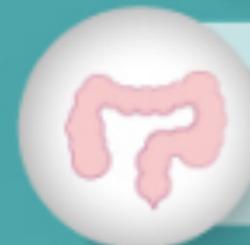
Cleanses toxic waste from various parts of the body and carries it to the liver and kidneys for removal



Lubricates joints and lessens discomfort from arthritis or back pain



Without the flow of water, there's insufficient water to remove waste and toxins through your stool



Slows down the aging process and makes skin smooth

Water allows efficient cellular repair

75% of Americans are chronically dehydrated

A University of Washington study discovered that one glass of water stopped hunger pangs for almost 100% of studied dieters.



The information in this fact sheet is for education purposes for clients and is not a replacement for medical treatment.

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