NutraMedix®

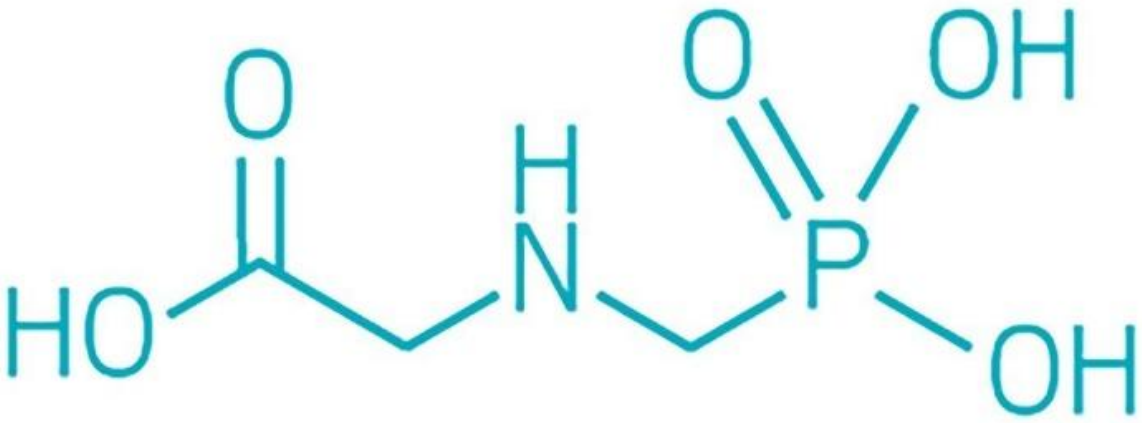
Detoxification Support and Organ Support and Drainage

Environmental Toxicity

- Over 87,000+ toxic chemicals have been released into our environment since the World War 2
  - -pesticides, herbicides, PFAS, plastics, BPA, solvents, etc.
- The average newborn baby has 287 known toxins in his/her umbilical cord blood including glyphosate and chemicals banned from the environment in the 70's
  - (Environmental Working Group Study)

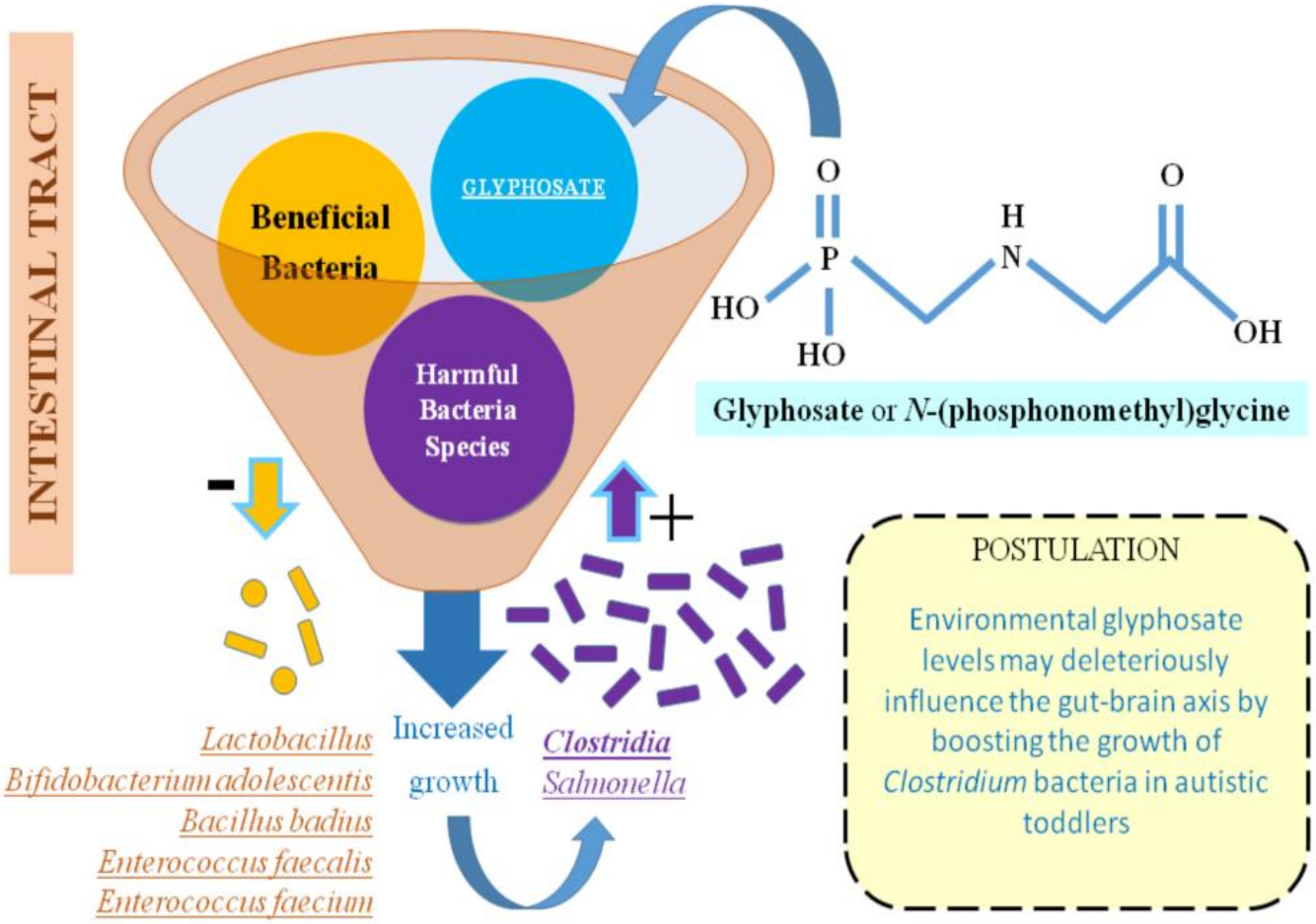
Glyphosate: Mechanism of Action

- Glyphosate's claimed mechanism of action in plants is the disruption of the shikimate pathway, which is involved with the synthesis of the essential aromatic amino acids, phenylalanine, tyrosine, and tryptophan.
- The currently accepted dogma is that glyphosate is not harmful to humans or to any mammals because the shikimate pathway is absent in all animals



Glyphosate

Glyphosate impact on the microbiome



Heavy Metal Toxicity

- Heavy metals are often stored in fats, bones and blood
- They attach to cellular receptor sites, knocking off the beneficial healthy metals (i.e. iron, zinc, magnesium, copper, manganese)
- They damage the mitochondria by attaching to cell receptor sites, reducing nutrient absorption and cellular waste removal
- Most damaging heavy metals: lead, mercury, arsenic, cadmium, aluminum
- Concern low dose chronic exposure

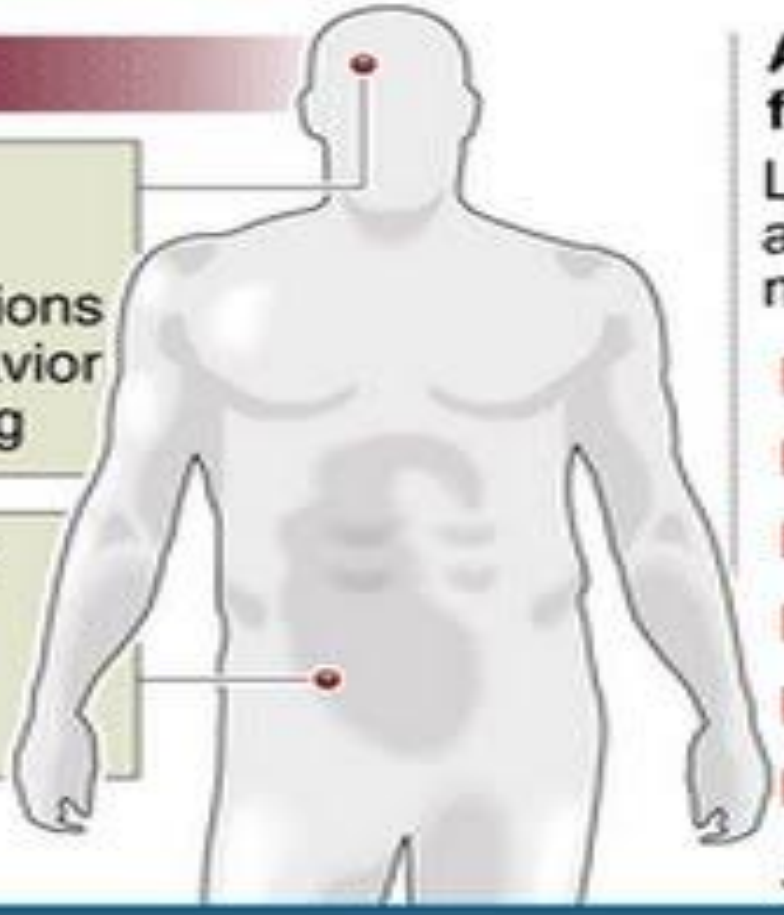
Lead poisoning

Lead buildup in the body causes serious health problems

Symptoms

- Headaches
- Irritability
- Reduced sensations
- Aggressive behavior
- Difficulty sleeping

- Abdominal pain
- Poor appetite
- Constipation
- Anemia



Additional complications for children:

Lead is more harmful to children as it can affect developing nerves and brains

- Loss of developmental skills
- Behavior, attention problems
- Hearing loss
- Kidney damage
- Reduced IQ
- Slowed body growth

Source: MedlinePlus/Mayo Clinic

AFP

Human Organ System	Exposure Pathway	Marker	Associated Outcome
Nervous system	Transplacental for maternal occupational settings or dietary intake. Breast-feeding and ingestion of contaminated food. Inhalation, for occupational exposure. Use of thimerosal in vaccines. Cultural or religious practices. Dermal exposure. Chronic exposure from amalgam dental fillings. Inhalation, for occupational exposure or dental amalgams replacement. Ingestion of contaminated food, particularly in fish eating populations.	Cord blood. Maternal milk, hair and blood. Child blood, hair and urine. Adult urine, blood and hair.	Infants/Children: Deficit in language (late talking) and memory, deficit in attention, decrements in infant cognition and neurobehavioral deficits. Adults: Depression, paranoia, extreme irritability, hallucinations, inability to concentrate, memory loss, tremors of the hands, head, lips, tongue and eyelids, low body temperature, drowsiness, headaches, weight loss, insomnia, fatigue, blindness, optic neuropathy, retinopathy, hearing loss, sensory, neurological and behavioral dysfunctions.
Motor system	Pre and post-natal exposure. Ingestion, for fish eating populations. Inhalation, for gold mining activities.	Maternal hair. Adult blood, hair and urine	Motor dysfunctions, increased tiredness, reduction in muscle strength and twitching, late walking.
Cardiovascular system	Chronic exposure, attributed to fish consumption and gold mining activities.	Adult hair, toenail, plasma and urine	Cardiomyopathy, hypertension, coronary heart disease, myocardial infarction, cardiac arrhythmias, cerebro-vascular accident, ischemic heart disease, generalized atherosclerosis.
Pulmonary system	Inhalation, for chronic exposure of volatilized vapors. Inhalation, for burning of Hg-containing material.	Adult urine	Chemical pneumonitis, necrotizing bronchitis, pulmonary fibrosis, cough, dyspnea, chest tightness, asthmatic disorders.
Renal system	Occupational contact, for abuse of skin lightening cosmetics or Hg-containing compounds. Chronic exposure, related to the number of dental amalgam fillings. Chronic dietary exposure, for fish consumption.	Adult urine, hair and blood.	Glomerular disease whit oliguria or anuria, increased plasma creatinine level and proteinuria. Subacute-onset nephrotic syndrome, nephritic syndrome, tubular dysfunction, glomerulonephritis.
Endocrine/Reproductive system	Prenatal exposure for maternal amalgam fillings/replacement. Chronic exposure from amalgam dental fillings. Exposure to occupational routes	Child urine and blood. Adult urine, hair and blood.	Adrenal hyperplasia and atrophy. Hypothyroidism, thyroid inflammation, and depression. Pancreatic dysfunction. Decreases rate of fertility in both males and females. Birth of abnormal offsprings.
Immune/Hematological system	Chronic dietary exposure. Clinical hypersensitivity for Hg-containing amalgam. Prolonged exposure in clinically asymptomatic workers.	Adult urine. Lympho/monocyte stimulation tests.	Induction and exacerbation of autoimmune and allergic diseases in susceptible populations. Decreased immunity of the body. Hemolytic anemia, aplastic anemia.
Embrional system	Maternal occupational settings. Maternal dietary exposure. Maternal amalgam fillings/replacement.	Cord blood. Fetal blood. Maternal hair.	Hypoplasia of the cerebellum, decreased number of nerve cells in the cerebral cortex, decreased total brain weight, abnormal neuron migration. Spontaneous abortions, stillbirth, low birth weights.

- Signs and Symptoms of Mercury Toxicity

Aluminum

OSUMEX

http://www.heavymetalstest.com/aluminum.php

"the natural way to better health"

ALUMINUM - TOXIC HEAVY METALS FACTSHEET

13
Al
26.982

Number 13 on the "periodic table" of elements

Image source: http://images-of-elements.com/aluminum.php

Pure aluminum is a silvery-white metal with many desirable characteristics. It is light, nontoxic (as the metal), nonmagnetic and nonsparking. It is somewhat decorative and easily formed, machined, and cast. Aluminum is an abundant element in the earth's crust, but it is not found free in nature.

SOURCES Aluminum is used in: cans and foils, kitchen utensils, outside building decoration, industrial applications where a strong, light, easily constructed material is needed. It is used in electrical transmission lines, in the construction of modern aircraft and rockets. Aluminum coatings are used for telescope mirrors, decorative paper, packages, toys, and in many other uses. The oxide, alumina, occurs naturally as ruby, sapphire, corundum, and emery, and is used in glass making and refractories. Synthetic ruby and sapphire are used in the construction of lasers.

TOXICITY The amount of aluminum in the human body ranges from 50 to 150 mg., with an average of about 65 mg. Most of this metal is found in the lungs, brain, kidneys, liver and thyroid. Our daily intake ranges from 10 to 110 mg but the body will eliminate most of this in our feces, urine and some in sweat.

Organic Toxicity Limits - A reading under 15-20 ppm is considered normal, but 10-15 ppm, is probably ideal.
Inorganic Toxicity Limits - Should be 0 ppm

TOXICITY SYMPTOMS Acute aluminum poisoning has been associated with constipation, colicky pain, anorexia, nausea and gastrointestinal irritation, skin problems, and lack of energy. Slower and longer-term increases in body aluminum may create muscle twitching, numbness, paralysis, and fatty degeneration of the liver and kidney. Aluminum toxicity has been implicated in the brain aging disorders. Alzheimer's disease and parkinsonism have both become more prevalent as incidents of aluminum toxicity have increased.

TESTING Check out aluminum levels in your body with our easy to use, home-based, HMT Aluminum Test Kit

Osumex HM-Chelat is most effective in eliminating heavy metals contamination in the body.

For more information, visit heavymetalstest.com/aluminum.php

Dangers of Aluminum

"Trace aluminum levels cross the blood-brain barrier and progressively accumulate in large pyramidal neurons of the hippocampus, cortex, and other brain regions vulnerable in Alzheimer's disease."
Source:
http://www.ncbi.nlm.nih.gov/pubmed/22330830

Aluminum anti-perspirants block sweat glands and may lead to a long-term over-exposure of hormones that would otherwise be released through sweat. Aluminum antiperspriant use may be linked to breast and prostate cancer through this mechanism.
Source:
http://www.ncbi.nlm.nih.gov/pubmed/19307063

Aluminum creates free-radical damage in the body and also robs it of vital minerals such as calcium and magnesium.
Source:
http://www.ncbi.nlm.nih.gov/pubmed/22330830

"Once absorbed, Al accumulates in bone, brain, liver and kidney, with bone as the major site for Al deposition in humans." Aluminum may be a cause for osteoporosis.
Source:
http://www.ncbi.nlm.nih.gov/pubmed/22512686

chemicaloftheday.squarespace.com

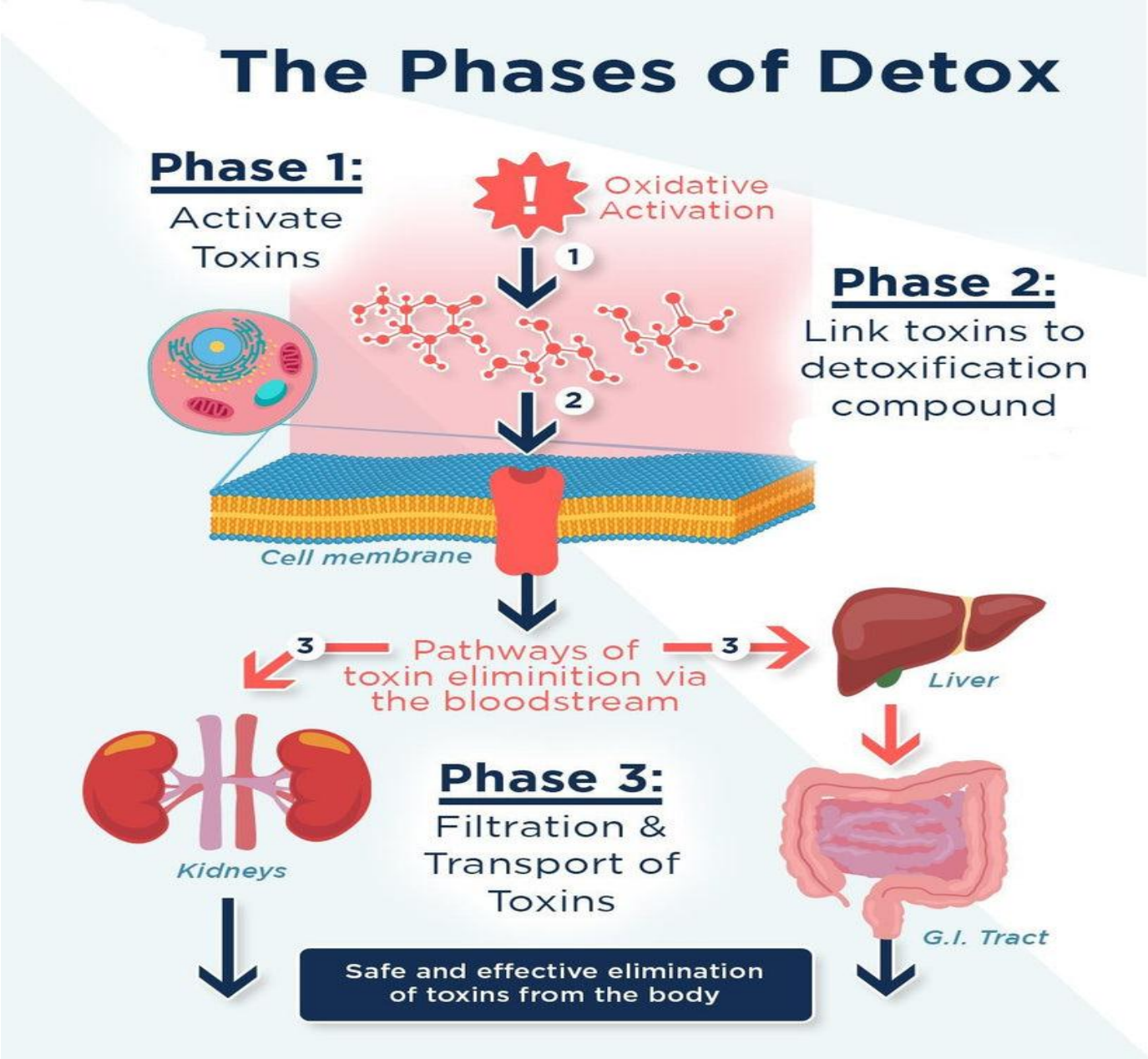
Heavy Metal Testing

- Hair Test: long term exposure
- Urine pre and post provoked challenge test with chelating agent such as DMSA/DMPS/EDTA
- Blood test: acute short-term testing

POTENTIALLY TOXIC METALS

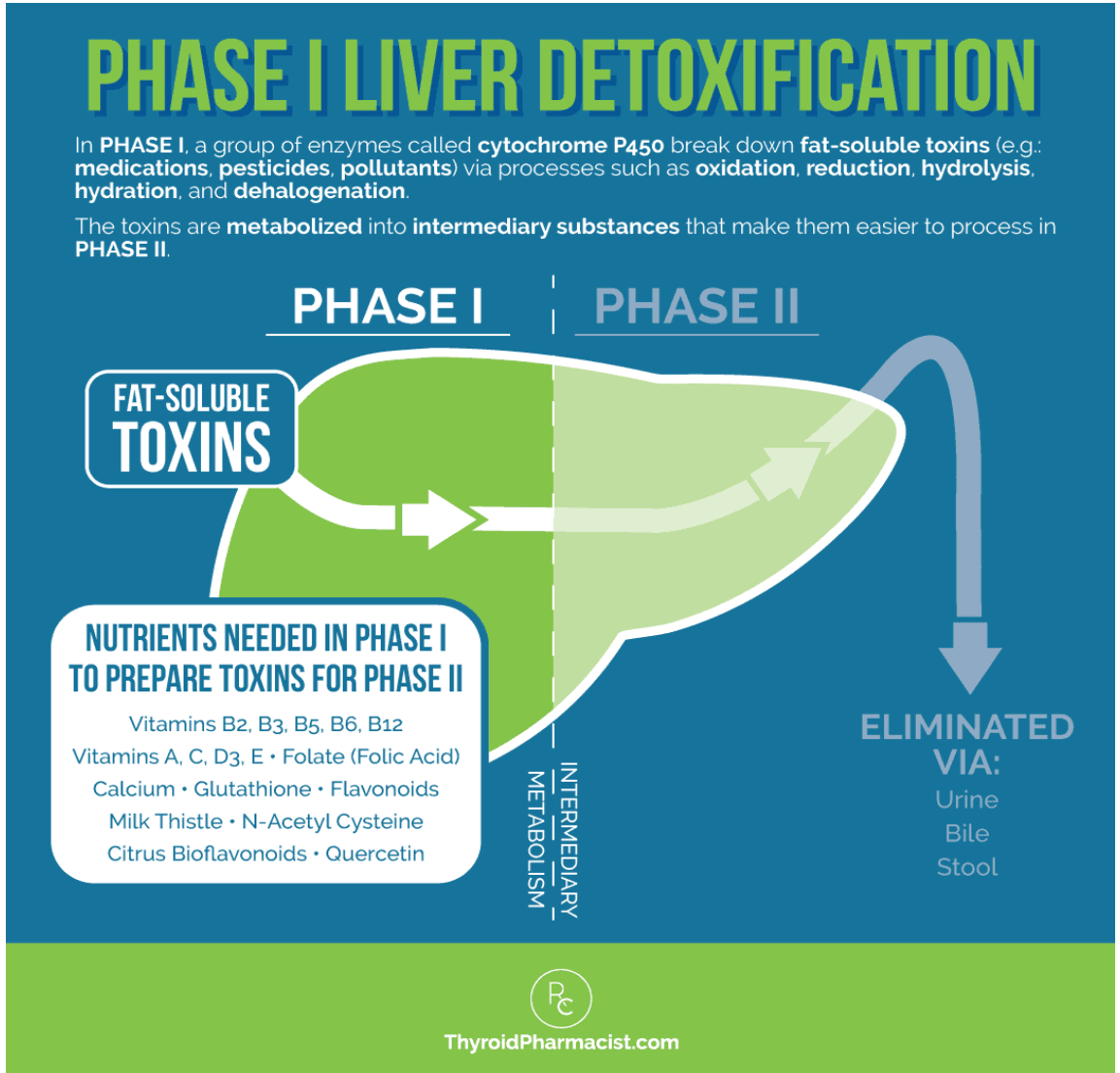
METALS	RESULT µg/g CREAT	REFERENCE RANGE	WITHIN REFERENCE RANGE	ELEVATED	VERY ELEVATED
Aluminum	< dl	< 25			
Antimony	0.3	< 0.6			
Arsenic	140	< 120			
Beryllium	< dl	< 0.5			
Bismuth	< dl	< 10			
Cadmium	1.1	< 2			
Lead	430	< 5			
Mercury	7.1	< 3			
Nickel	12	< 10			
Platinum	< dl	< 1			
Thallium	0.3	< 0.7			
Thorium	< dl	< 0.3			
Tin	8.5	< 9			
Tungsten	0.2	< 0.7			
Uranium	< dl	< 0.1			

Three Phases of Detoxification

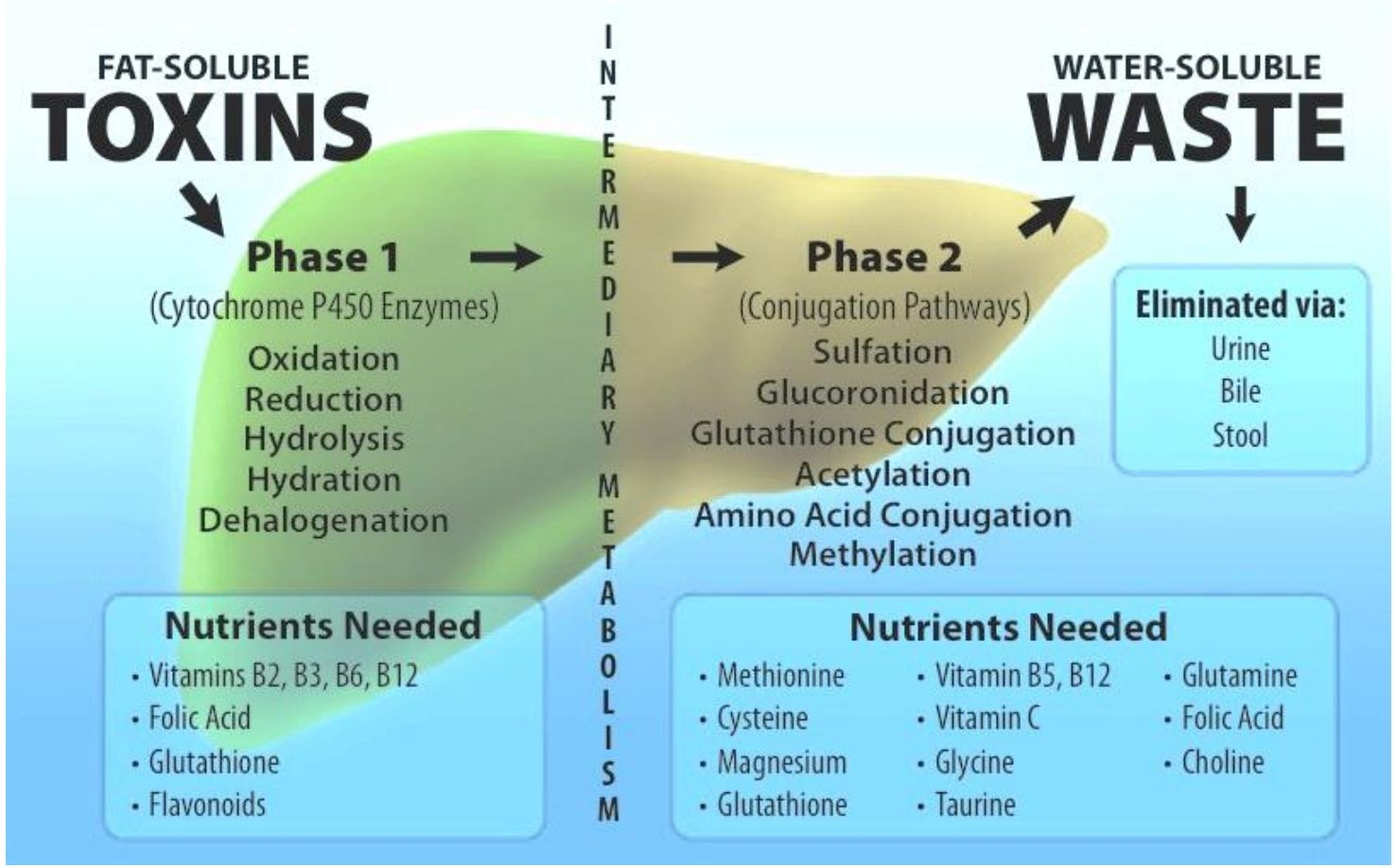


Phase 1: Cytochrome P450 Enzymes

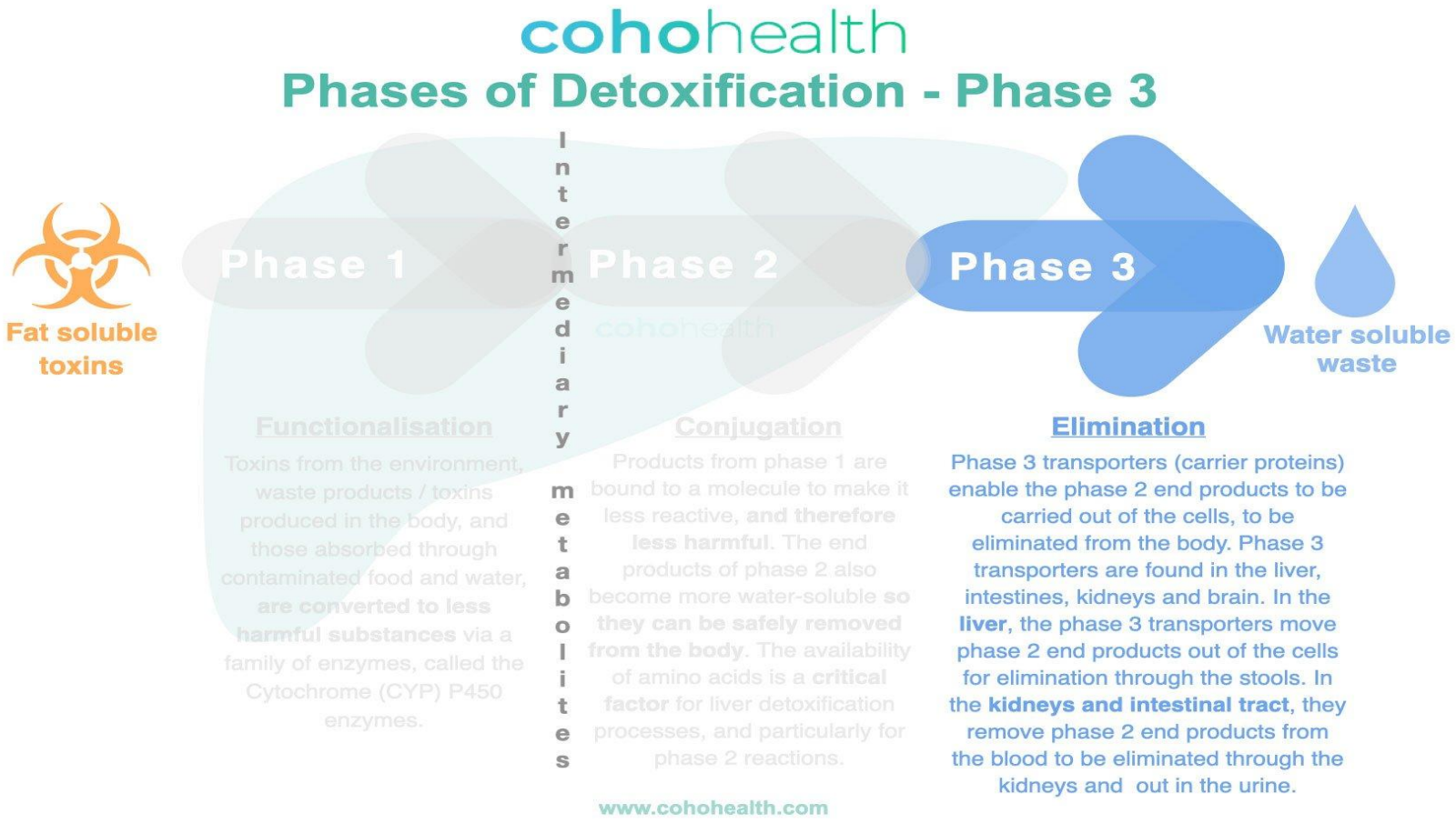
- Fat soluble toxins converted to intermediary metabolites-which are highly reactive and can cause oxidative stress damage to tissues so important to have phase 2 metabolism work to get rid of these metabolites



Phase 2: Conjugation of intermediate metabolites to water soluble metabolites that can be removed from the body

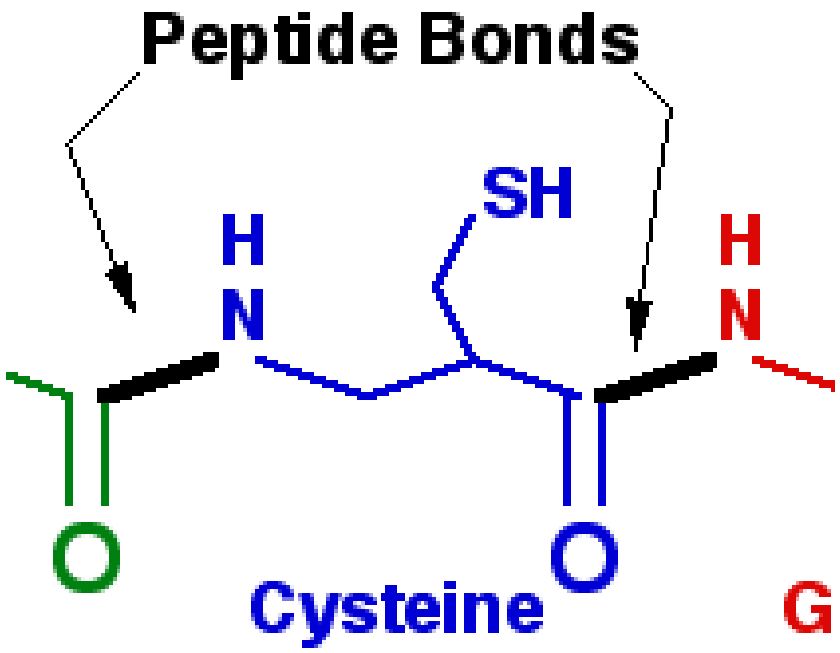


Phase 3:Filtration and Transport of Tissues out of the body through GI tract and Kidneys



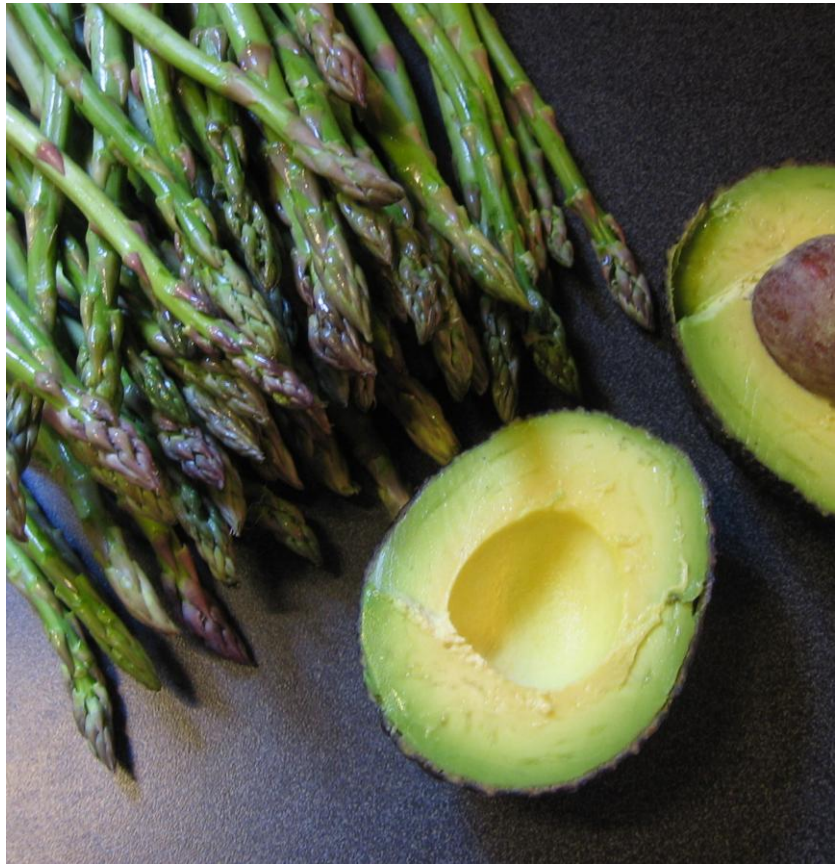
Glutathione Functions: Master Antioxidant

- Glutathione needed in phase 1 and phase 2 detoxification
- Reduces Free Radicals
- Detoxifies Chemicals
- Chelates Heavy Metals
- Protects Mitochondrial DNA
- Cellular Anti-inflammatory compound
- Storage and transport of cysteine
- Enhances immune function: increases NK cells



Glutathione Formation

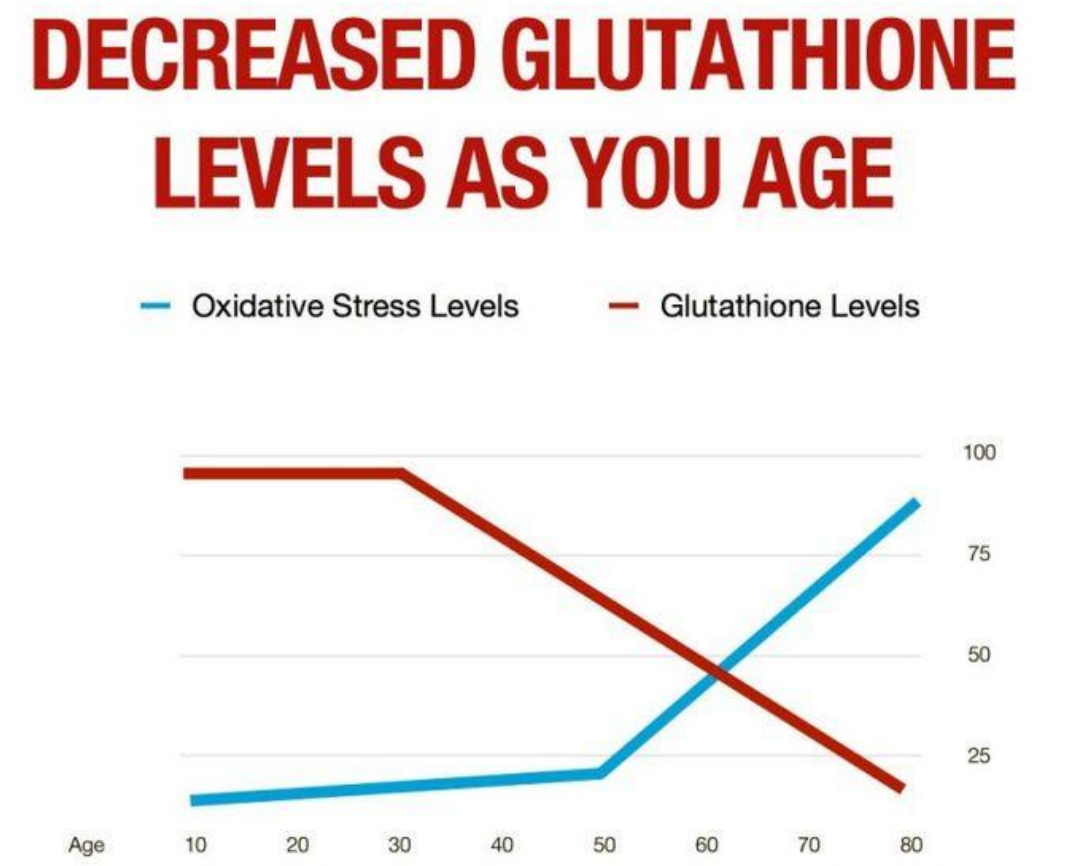
- Diet: Minimal intake 100 to 150 mg daily
- Uncooked, raw, unprocessed, unpasteurized
- Asparagus a good source: reason for Sparga tincture
- Precursors: Amino acids: glutamine, glycine, cysteine
- Cofactors:
  - Vitamin C, E, B1, B2, B6, B12, Folate, Selenium, Mg, Zinc, ALA



Depletion of Glutathione

- High oxidative stress
- Chronic inflammation: chronic disease
- Chronic infections: have high oxidative stress and inflammation
- Chronic stress
- Tylenol (acetaminophen)
- Acetone/solvents
- Fuel/gasoline
- Heavy Metals
- Pesticides/Herbicides
- Nitrates: Food preservatives
- Artificial sweeteners
- Ethanol/marijuana/drugs
- Household chemicals: detergents, cleaners, bleach
- Plastics
- Non-stick cookware
- Chlorine treated water
- Formaldehydes
- X-rays
- EMF's
- UV radiation
- Synthetic food dyes
- Benzopyrenes: tobacco
- Industrial pollutants

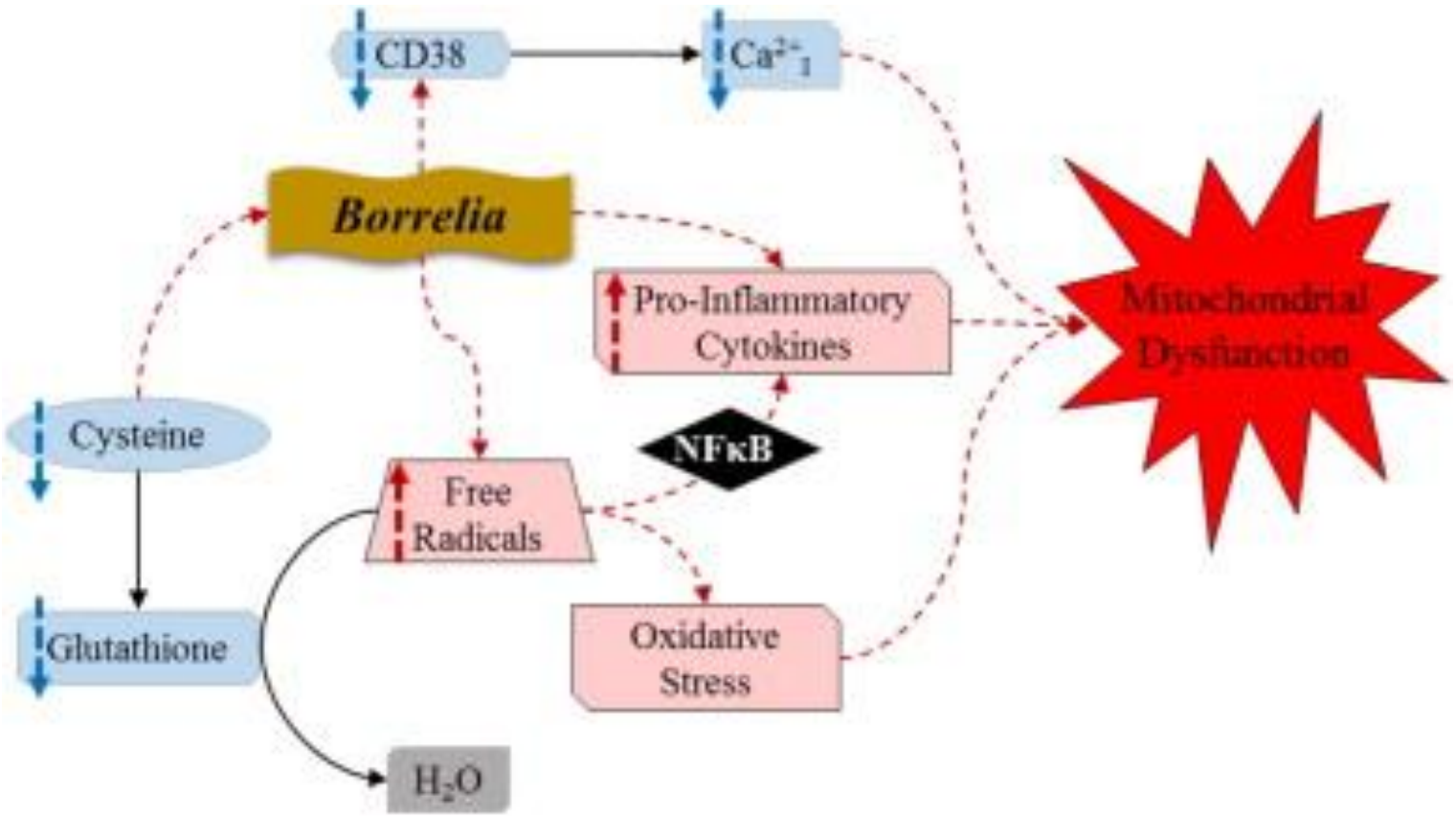
Depletion of Glutathione



As we age, Glutathione levels naturally decrease, resulting in free radical damage and oxidative stress.

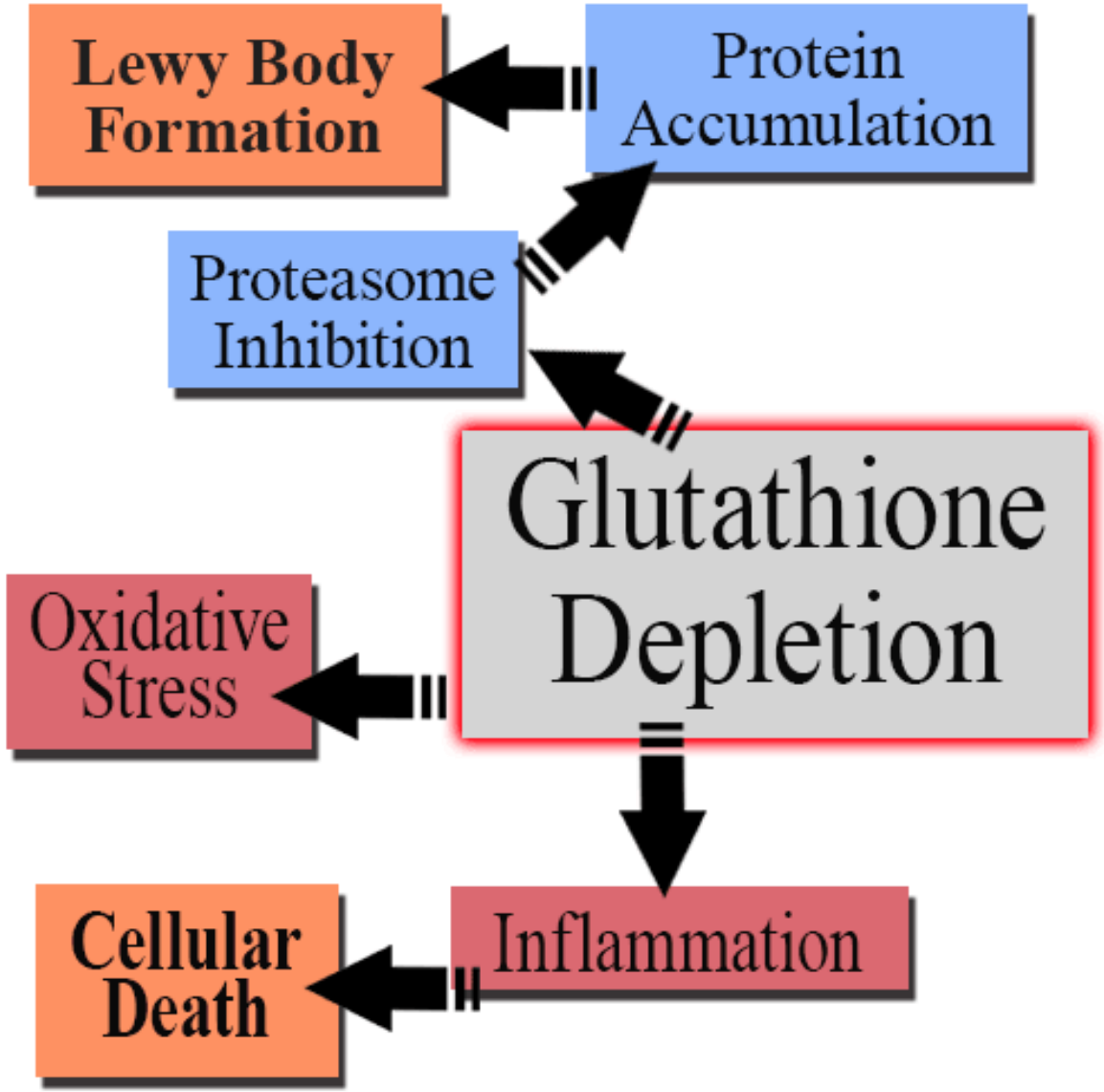
Depletion of Glutathione: Chronic Lyme

Peacock BN. Et al. New insights into Lyme disease. Redox Biology. 2015;5:66-70.



Depletion of Glutathione

- Neuroinflammation leading to oxidative stress, inflammation, and long term to neurodegeneration
- Common pattern in neurodegenerative disease



Low Glutathione in ASD

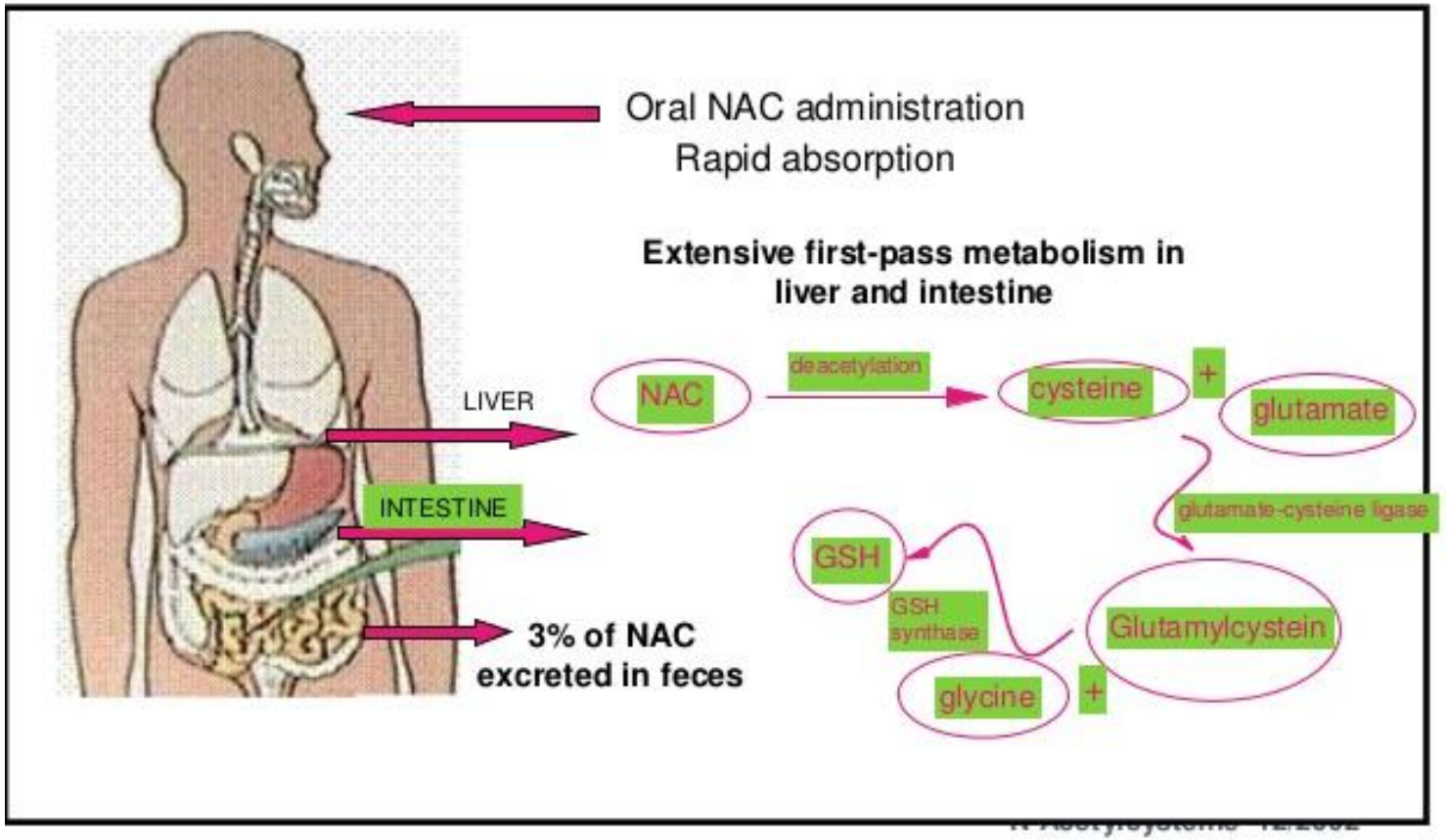
- Relative to the control children, the children with autism had significantly

  lower baseline plasma concentrations of methionine, SAM, homocysteine, cystathionine, cysteine, and total glutathione and significantly **higher concentrations of SAH, adenosine, and oxidized glutathione**.

  impaired capacity for methylation and increased oxidative stress in children with autism.
- Jill James et al. Am J Clin Nutr 2004;80:1611-161

Concern with N-Acetylcysteine

Metabolism of NAC



Liposomal Glutathione: Capsules

- LiposoMax- patented liposome technology- company makes a liposomal glutathione with their specialized liposomes
- Phospholipid source: sunflower lecithin (soy free)
- Non-GMO
- Dose: 1 capsule: (most liposomal glutathione's- gels)

  Reduced L-glutathione 340 mg

  Fatty acids 50 mg

  Phospholipids 75 mg

Detoxification: Formulas to help remove toxins from the body

- **Algas**: Chondracanthus chamissoi extract- Red seaweed
- **Sealantro**: Mixture of chlorella, cilantro, and Chondracanthus chamissoi extract (in Algas)
- **Binder Plus capsules**: Mixture of activated charcoal, zeolite, inulin, aloe vera leaf, bentonite clay, fulvic minerals, and chitosan (from mushrooms so no risk of seafood allergy)

Algas: Chondracanthus chamissoi extract

- Red seaweed- higher percentage of bioactive compounds
  - Versus green or brown seaweed
- Metal detoxification
- Mobilize metals out of the interior of the cell
- Can alternate with Sealantro
- Energetics: heavy metals, radioactive energy

- Ibrahim, W. M. (2011). Biosorption of heavy metal ions from aqueous solution by red macroalgae. *Journal of Hazardous Materials*, *192*(3), 1827-1835
- Miranda-Delgado, A., Montoya, M. J., Paz-Araos, M., Mellado, M., Villena, J., Arancibia, P., ... & Jara-Gutiérrez, C. (2018). Antioxidant and anti-cancer activities of brown and red seaweed extracts from Chilean coasts. *Latin american journal of aquatic research*, *46*(2), 301-313.

Sealantro: Chlorella, Cilantro, Red seaweed

- Cilantro: bring toxins out of the cell and tissues
- Chlorella: bind toxins in the gut and out of the body
- Help with heavy metals, other toxins
- Antioxidant and anti-inflammatory
- Cardiovascular support
  - (think lead contributing to heart disease)
- Energetics: heavy metals, radioactive illness

Preparation for Detoxification

- For patients who are sensitive to detoxification or for detoxification for Lyme and mold patients- can consider treatment with detox support for 1 to 2 weeks depending on the patient
  - Burbur-Pinella twice daily
  - Binder Plus in between meals 1 to 2 times a day
  - Liposomal Glutathione 2 capsules daily
  - Consider: MCAS support for sensitivity to multiple herbs, foods, Environmental triggers, EMF sensitivity, chemical sensitivity

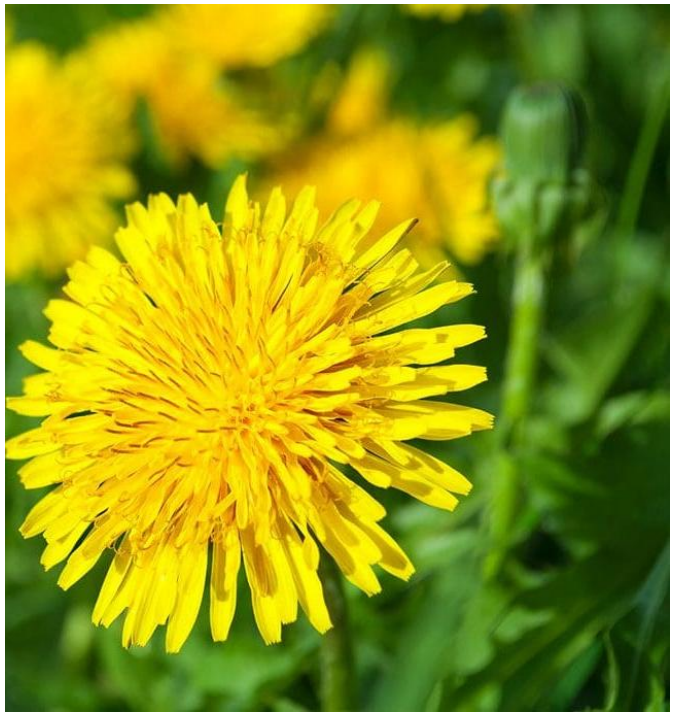
Detoxification: Organ Support

- Burbur-Pinella: liver, kidney, lymph, ground matrix, nervous system, brain, spinal, peripheral nerves nervous system, glymphatic(brain lymph system)
  - Burbur: liver, kidney, lymph, ground matrix
  - Pinella: nervous system, brain, spinal, peripheral nerves
- Dandelion: liver, kidney, lymph
- Parsley: kidney, liver, lymph, ground matrix (space between the cells)
- Mapalo: Nervous system
- Sparga: Sulfur detoxification (good source of glutathione)

Dandelion: Taraxacum officinale

- Liver, lymph, kidney, ground matrix detoxification
- Antioxidant:
  - support glutathione, SOD-superoxide dismutase levels
- Improve Nitric Oxide levels- help with vasodilation- BP
- Metabolic support
- Improve mood by increasing BDNF
- Part of Neutralizer protocol and CSP+
- Prevention of binding of spike protein to ACE receptor
- Quantum energy; COVID, EMF's, heavy metals, herx support, multiple infections- over 15 potential future pandemics

Dandelion (Taraxacum Officinale)



Herxheimer reaction:

From treatment of Infections, Toxins and Mold

Die-Off Symptoms

Here is a list of some of the symptoms you might experience during a die-off (otherwise known as a Herxheimer reaction).

- Nausea
- Headache, fatigue, dizziness
- Swollen glands
- Bloating, gas, constipation or diarrhea
- Increased joint or muscle pain
- Elevated heart rate
- Chills, cold feeling in your extremities
- Body itchiness, hives or rashes
- Sweating
- Fever
- Skin breakouts
- Recurring vaginal, prostate and sinus infections

Herxheimer Treatment

- Burbur-Pinella daily during treatment
  - For acute or worsening symptoms: may use Burbur-Pinella hourly until resolve symptoms
- Binder Plus as needed in between meals
- Liposomal Glutathione
- Dandelion

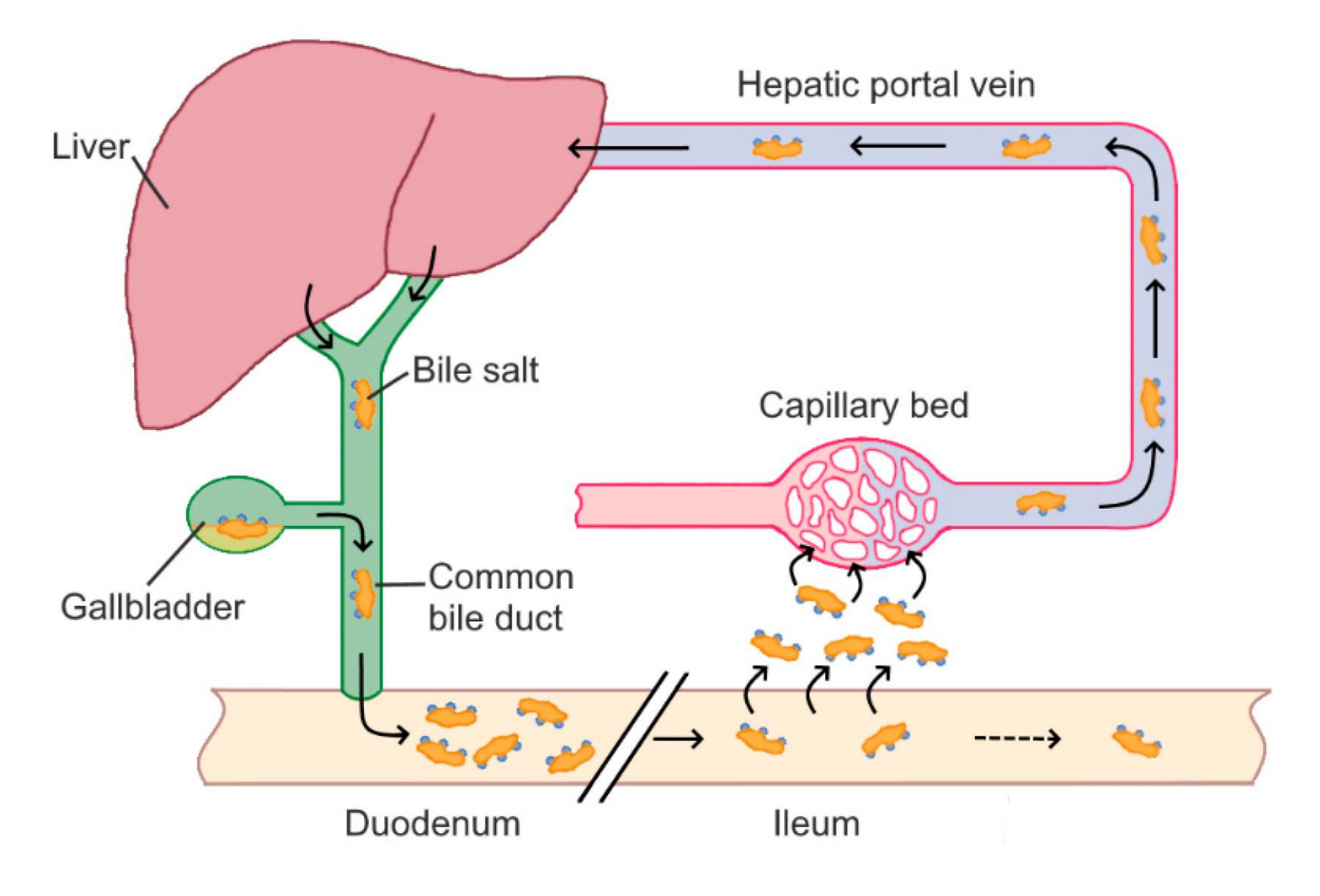
Burbur-Pinella (Desmodium molliculum leaf and Pimpinella spp stems- Anise)

- Primary detoxification formula
- Primary herx prevention and treatment
- Herx: may use every 10 min for acute herx symptoms
- Liver, kidney, lymph, ground matrix, nervous system: brain, spinal, peripheral nerves, glymphatics

- Shojaii, A., & Abdollahi Fard, M. (2012). Review of pharmacological properties and chemical constituents of Pimpinella anisum. *ISRN Pharmaceutics*, 2012

Binders

- Substances that bind to the mycotoxins, environmental toxins, and LPS from microbes in the intestine
- Prevents reabsorption by the portal vein back to the liver-interferes with enterohepatic circulation
- Removes mycotoxins through the intestine safely
- Different binders bind to different mycotoxins so combination product more effective
- GI support with inulin and aloe vera- help for GI side effects such as constipation



Enterohepatic Circulation

Binder Plus: 2 capsules in between meals 1 to 2 times daily

- Activated Charcoal
  - Binds endotoxins and mycotoxins
- Zeolite
  - Binds mycotoxins, heavy metals, aluminum, environmental toxins such as BPA and pesticides
- Inulin (from Agave) and Aloe Vera Leaf
  - Support gut health and constipation (often from binders)
- Bentonite Clay
  - Binds mycotoxins like aflatoxins, ochratoxin A (OTA) and deoxynivalenol (DON)
- Fulvic Minerals
  - Binds mycotoxins including aflatoxins and Aspergillus toxins
- Chitosan (from Mushrooms-shellfish free)
  - Binds mycotoxins Aspergillus, Candida, Fusarium, and Ochratoxins

Parsley

- Kidney, liver, lymph detox, ground matrix
- Energetics similar to dandelion
- Can rotate with dandelion
- Antioxidant
- Anti-inflammatory
- Flavonoids: Apigenin
- Phenols: Antioxidants
- Source of vitamin K and A

- At the University of Guayaquil, Ecuador, Parsley produced an anti-inflammatory effect 89% as strong as Feldene as an anti-inflammatory.(NutraMedix product)
- Liberal Â, Fernandes Â, Polyzos N, Petropoulos SA, Dias MI, Pinela J, Petrović J, Soković M, Ferreira ICFR, Barros L. Bioactive Properties and Phenolic Compound Profiles of Turnip-Rooted, Plain-Leafed and Curly-Leafed Parsley Cultivars. Molecules. 2020 Nov 28;25(23):5606. doi: 10.3390/molecules25235606. PMID: 33260591; PMCID: PMC7730503.

Sparga (Asparagus leaf and stem extract)

- Sulfur detoxification-sulfite and sulfate
- Energy: sulfa drugs detoxification
- CBS and SuOx- sulfur detoxification genetic SNP's support
- High source of glutathione

- problem with sulfite and sulfa drugs likely results from a genetic up-regulation of the Cystathionine-Beta-Synthase (CBS) enzyme or a genetic down-regulation of Sulfite Oxidase (SuOx). When this occurs, sulfite and sulfa drugs build up in that individual, blocking glutathione production and blocking uptake of lipoic acid and sulfur amino acids thus making detoxification inefficient

Mapalo (Phoradendron crassifolium-Mistletoe)

- Brain detoxification
- Helpful for brain fog, insomnia, moodiness
- Neuroplasticity
- Stimulate regeneration of nerves, brain, peripheral nerves

- Szurpnicka A, Kowalczuk A, Szterk A. Biological activity of mistletoe: in vitro and in vivo studies and mechanisms of action. Arch Pharm Res. 2020 Jun;43(6):593-629. doi: 10.1007/s12272-020-01247-w. Epub 2020 Jul 3. PMID: 32621089; PMCID: PMC7340679.

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- Gasnier et al. Defined Plant Extracts Can Protect Human Cells Against Combined Xenobiotic Effects Journal of Occupational Medicine and Toxicology 2011, 6:3