Welcome

- I’m Beth O’Hara, founder of Mast Cell 360. Dr. Kelly and I want to welcome you to our Mastering Mast Cell Activation Summit.
- I’m Kelly McCann of the Spring Center, we’re so glad you’re here
- We have put together these minipresentations for you to give you foundational information for the talks you’ll be hearing on the summit.
- Let’s take a look at the summit topics for the week – cut to slides

Mastering
Mast Cell Activation

Themes for Each Day

Day 1: Big picture of MCAS and frameworks for healing

Day 2: Cell Danger Response and Order of Operations in MCAS

Day 3: Top MCAS Environmental Toxin Triggers

Day 4: Mold Toxicity and MCAS Special Considerations

Day 5: Infectious Mast Cell Triggers and MCAS Approaches

Day 6: Calming Sensitivities When Nothing is Working

Day 7: Improving your GI system with MCAS

Mastering Mast Cell Activation

Summit Day 1 Talks

Kelly McCann, MD – Multi- prong McCann Approach to Healing from MCAS

Beth O'Hara, FN – Healing MCAS Healing the Planet

Theo Theoharides, MD – Cutting Edge Approaches in MCAS, COVID, Dysautonomia

Larry Afrin, MD – Discovering MCAS: Dr. Afrin's First MCAS Case

Neil Nathan, MD – Why Am I So Sensitive?

Alison Vickery – Functional Medicine Approaches

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Special Live Q&A Dates

- **Monday, October 16 at 11am Pacific / 2pm Eastern**
  Beth on Facebook - https://mastcell360.com/Oct16
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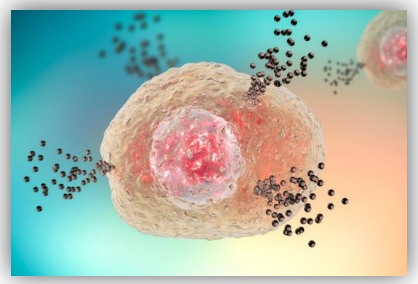

MCAS 101 Topics for Today

- Mast Cells 101
- Mediators and Receptors
- MCAS Defined
- Signs and Symptoms of MCAS
- What is the real problem?
- Top triggers of MCAS

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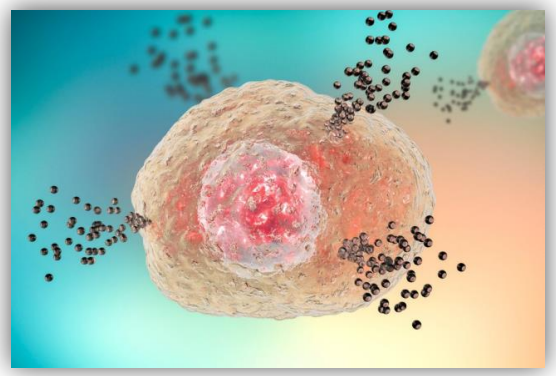

What Are Mast Cells?

- Mast cells are specialized immune cells
- Frontline sensors and defenders; major conductors of the immune system
- Respond to toxins (mold, chemicals) and pathogens (bacteria, viruses)
- Respond to every particle of air, everything you swallow, every thought.
- Respond to your environment

- Heat and Cold
- Light and Sound
- Touch and Smell
- Vibration
- Injury

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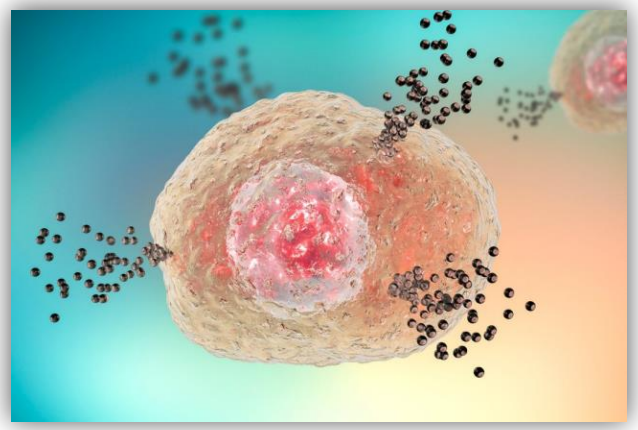

Mast Cell Locations

- Mucosal and Epithelial Tissues:
  - Lining of the nose and sinuses
  - Lining of the eyes
  - Lining of the mouth
  - Lining of the digestive tract
  - Lining of the bladder and urethra
  - Lining of the lungs
- Vascularized Tissues
- Nerve Tissue
- Brain
- Connective Tissues:
  - Ligaments
  - Tendons
  - Bones
  - Blood vessels
  - Lymph vessels
  - Hair follicles
  - Skin

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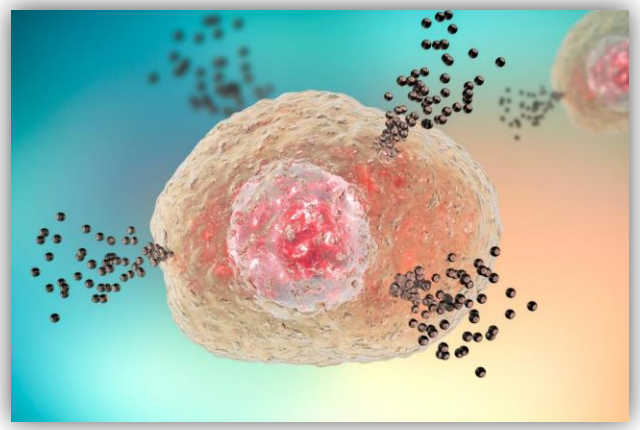

See Reference Slides #1-2

Mast Cell Roles and Functions

- Immune system responses
- Coordination of immune defense in infections like viruses, bacteria, mold, candida, and parasites
- Wound healing and tissue repair
- Recovery of connective tissues after injury (i.e. skin and joints)
- Formation of new blood vessels and vasodilation
- Creating new nerve cells
- Regulation of menstruation
- Regulation of pregnancy

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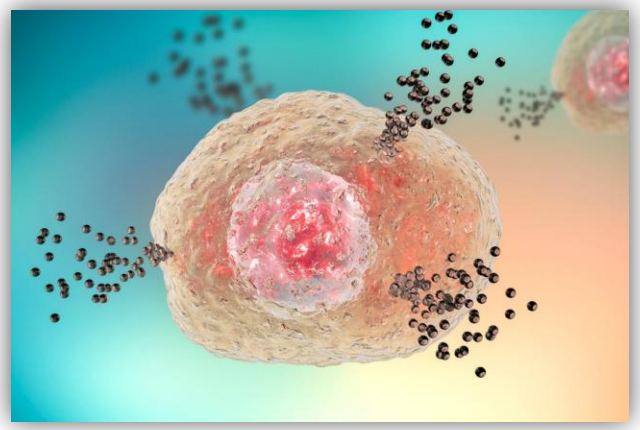
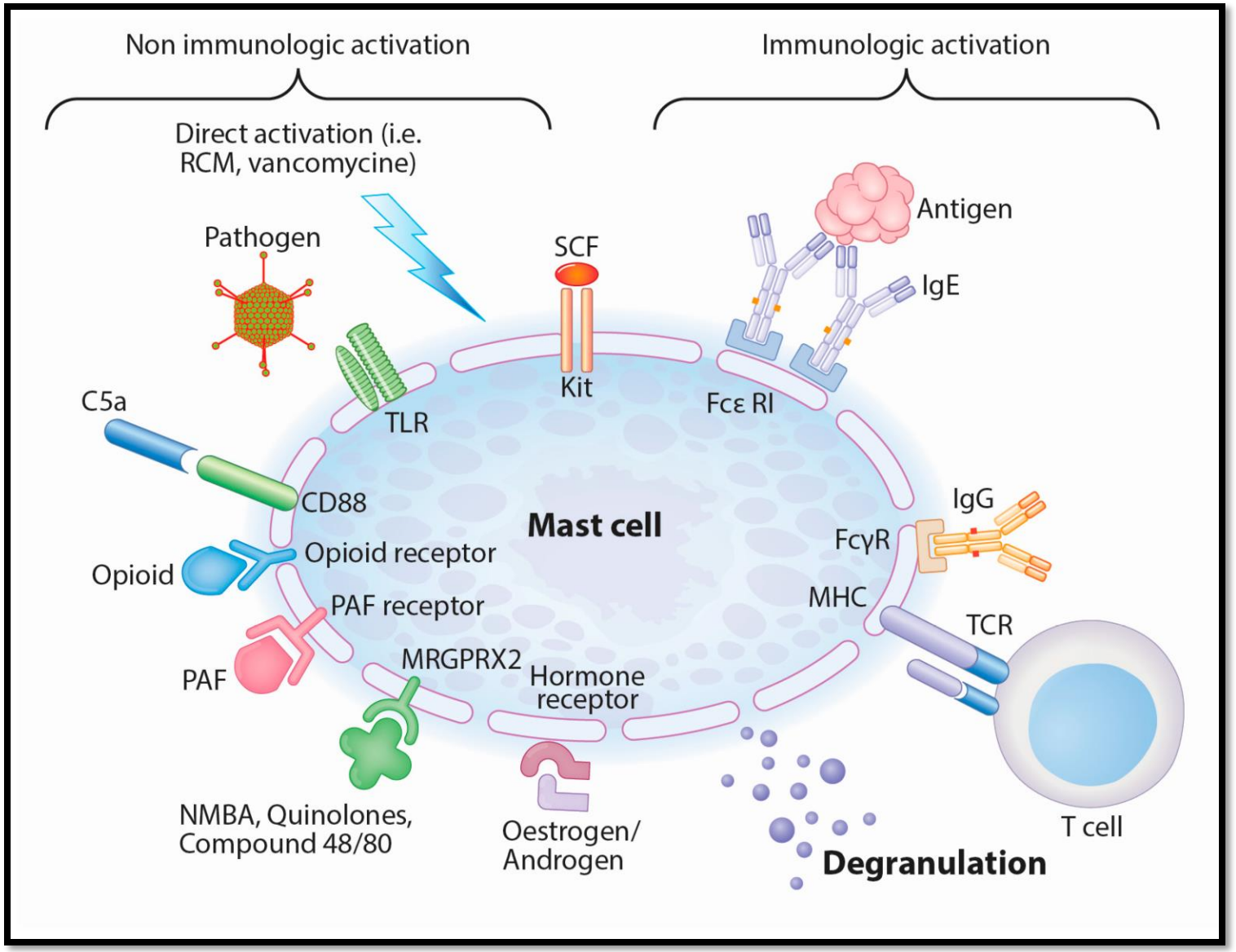


Mast Cell Receptors and Mediator



David Spoerl, Haig Nigolian, Christoph Czarnetzki, Thomas Harr. Int. J. Mol. Sci. 2017, 18(6), 1223; doi:10.3390/ijms18061223

Mast Cell Activation Syndrome

What is Mast Cell Activation Syndrome?

- Multi-systemic inflammatory conditions involving overly sensitive and overly responsive mast cells;
  - with or without allergy
  - with or without anaphylaxis
  - with or without hypersensitivity
- Rare: Genetic MCAS (also called clonal)
- Very common: secondary MCAS (also called non-clonal MCAS)

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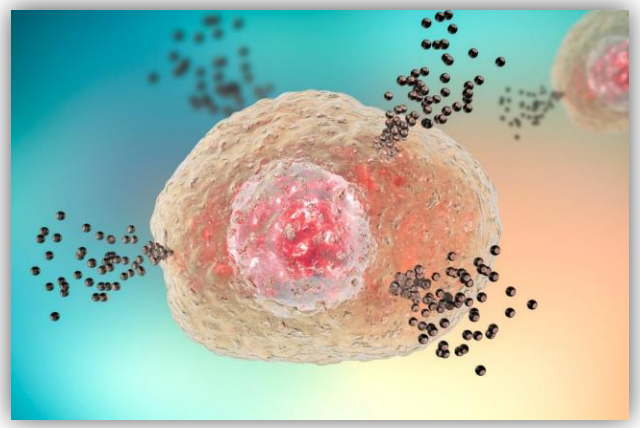

Mast Cell Activation Syndrome

- Dysregulation of Mast Cells
- Mast cells become over-reactive and over-release inflammatory mediators
- Population studies pre-pandemic showed MCAS is present in up to 17% of the general population – that's about 1 in 6 people!
- Estimates are 75% or more of people with chronic health conditions likely have MCAS
- Experts suspect since COVID, that up to 25% of the general population may have MCAS

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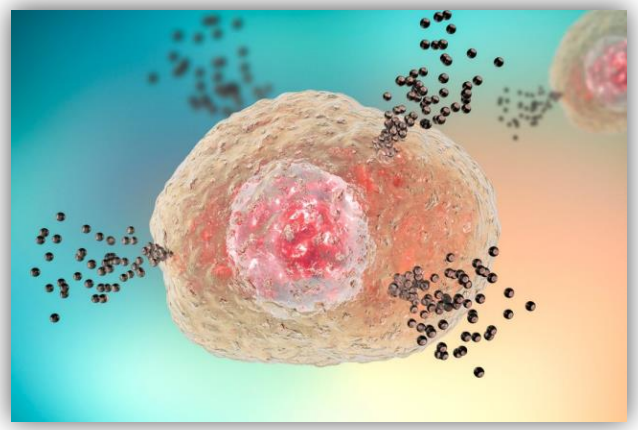

See Reference Slides #1-7

Signs and Symptoms of MCAS

Can show up very differently in different people depending on:

- Individual root triggers
- Locations of mast cells affected
- Which receptors are affected
- Which mediators are being over-released
- Individual bio individuality
- Individual genetics

This is why there are so many different types of MCAS presentations and every case is different

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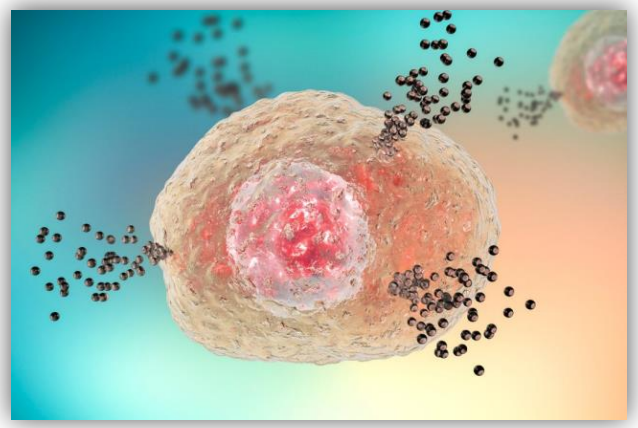

Signs & Symptoms of Mast Cell Activation Syndrome

Systemic Symptoms:

- overall fatigue
- inflammation
- swelling
- weight changes
- sensitivities to foods, medications, environment, chemicals, EMFs, etc.

Skin Symptoms:

- itching
- flushing
- hives
- rashes
- hair loss
- rosacea, psoriasis, eczema

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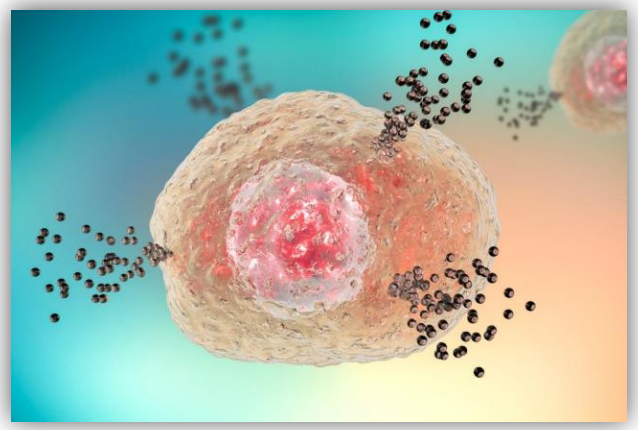

Signs & Symptoms of Mast Cell Activation Syndrome

Cardiovascular Symptoms:

- fainting or feeling faint
- chest pains
- heart palpitations
- dizziness
- low blood pressure

Urinary Tract Symptoms:

- inflammation of tissues
- burning
- pain with urination
- urinary tract infection type symptoms

Musculoskeletal Symptoms:

- Osteoporosis/osteopenia
- arthritis that moves around
- muscle and/or bone pain
- hyperflexible joints
- degenerative discs

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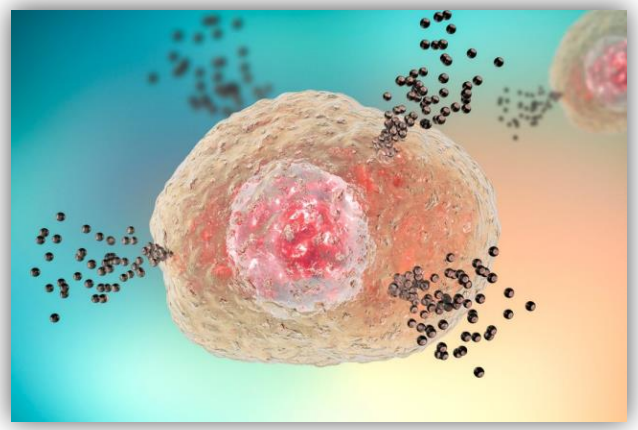

Signs & Symptoms of Mast Cell Activation Syndrome

Brain and Nervous System Symptoms:

- brain fog
- difficulty paying attention
- headaches, migraines
- depression, anxiety
- tingling and numbness
- tinnitus

Lung and Respiratory Symptoms:

- congestion
- coughing
- shortness of breath
- asthma

Reproductive System Symptoms:

- endometriosis
- painful periods
- male and female infertility
- hormone imbalances

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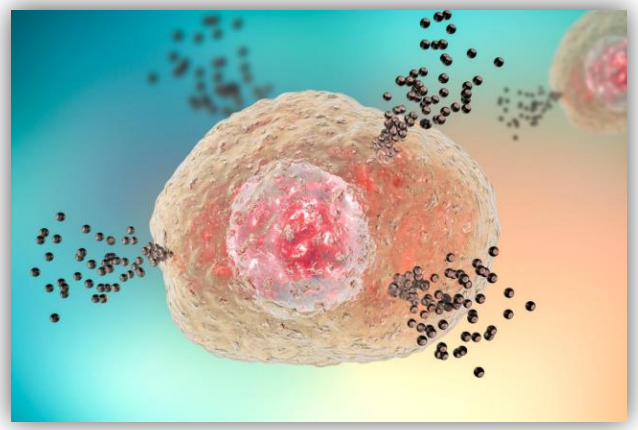

Signs & Symptoms of Mast Cell Activation Syndrome

Digestive Symptoms:

- mouth burning
- diarrhea and/or constipation
- nausea
- reflux or heartburn
- food sensitivities
- IBS
- throat/tongue swelling
- symptoms within 0 to 15 minutes of eating

Eye Symptoms:

- eye pain
- redness
- trouble focusing
- inflammation in the eyes
- blurry, itchy, watery eyes
- irritated eyes

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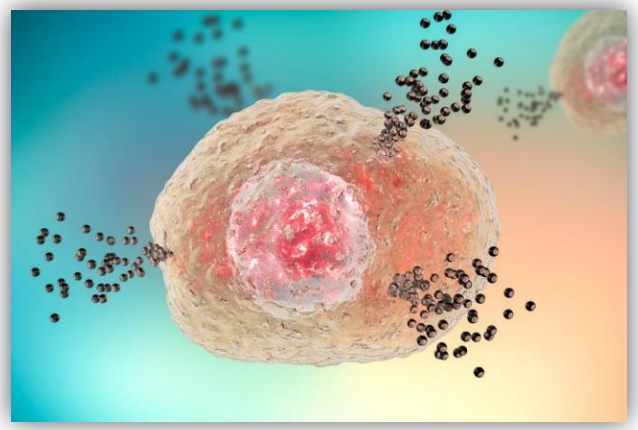

Signs & Symptoms of Mast Cell Activation Syndrome

Anaphylactic or anaphylactoid reactions (can be life threatening):

- difficulty breathing
- itchy hives
- flushing or pale skin
- feeling of warmth
- weak and rapid pulse
- nausea
- vomiting
- diarrhea
- dizziness and fainting

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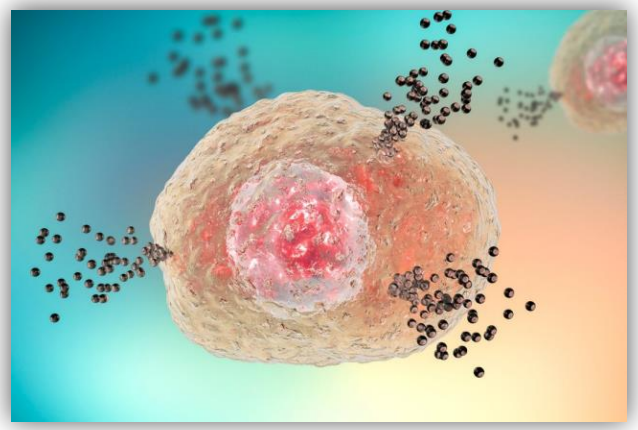

Signs & Symptoms of Mast Cell Activation Syndrome

Other conditions that may be related to MCAS

- Fibromyalgia
- Chronic Fatigue
- Interstitial Cystitis
- Certain cancers
- Diabetes
- Ehrlers-Danlos Syndrome (EDS)
- Postural Orthostatic Tachycardia Syndrome (POTS)
- Autism Spectrum Disorders
- Any Autoimmunity
  - Ie. Rheumatoid Arthritis
  - Lupus
  - Thyroid Autoimmunity
  - Multiple Sclerosis
  - Crohn's disease
  - Ulcerative Colitis
  - Sjögren's syndrome
  - Celiac Disease

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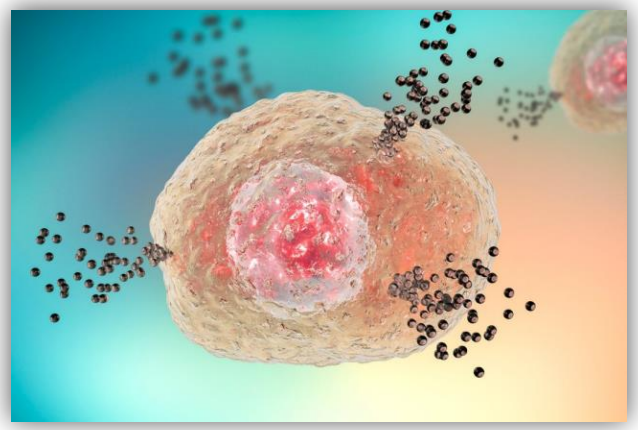

Common but not Definitive Signs of MCAS

- Sensitive to a number of agents
- Reacting within seconds to minutes to smells, foods, beverages, stressors
- Any form of autoimmunity

Take the MCAS Symptom Survey:
Mastcell360.com/symptoms

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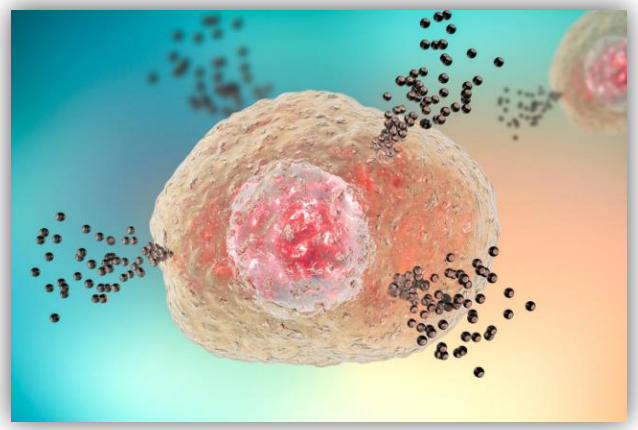

What is the REAL Problem?

- Mast Cell Activation Syndrome and Histamine Intolerance are NOT the problem.
- The underlying pathogens, toxicity, stressors, and genetic weaknesses are the problem.
- But you CAN reverse much if not all of the symptoms by removing and addressing the underlying triggers!

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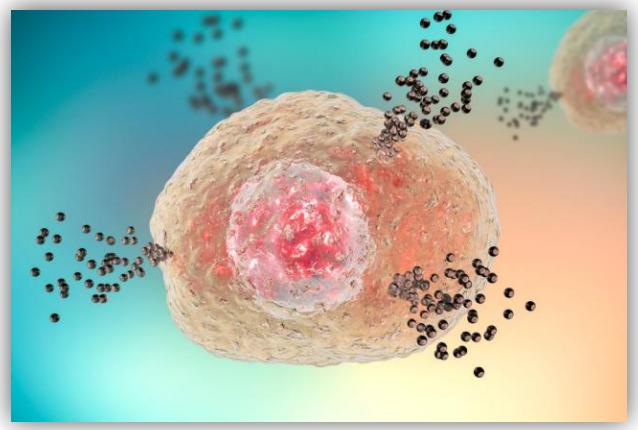

Top MCAS Triggers

- Mold Toxicity
- Tickborne Infections
- Chemical Toxins
- Trauma and Chronic Stressors
- EMFs

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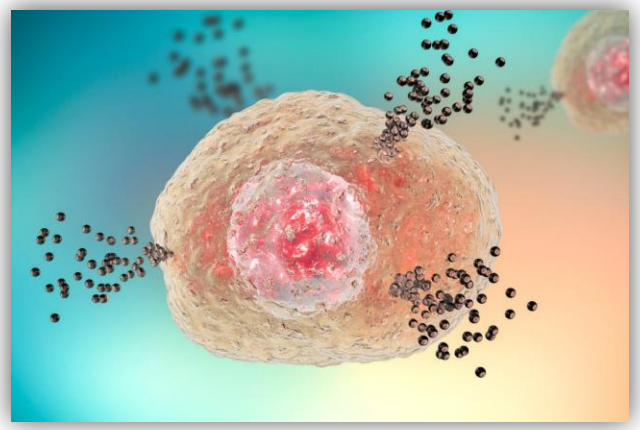

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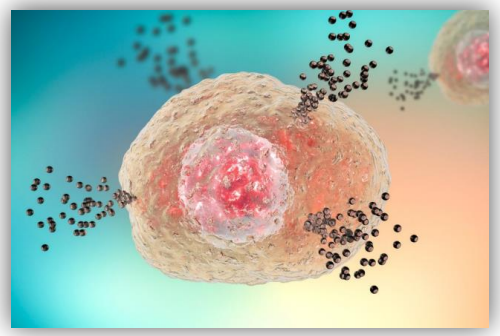

Themes for Each Day

Day 1: Big picture of MCAS and frameworks for healing

Day 2: Cell Danger Response and Order of Operations in MCAS

Day 3: Top MCAS Environmental Toxin Triggers

Day 4: Mold Toxicity and MCAS Special Considerations: Salicylates, Oxalates, and Sulfur Intolerance

Day 5: Infectious Mast Cell Triggers and MCAS Approaches

Day 6: Calming Sensitivities When Nothing is Working

Day 7: Improving your GI system with MCAS; Histamine, Lectins, and FODMAPs

Mastering Mast Cell Activation

Your co-hosts

Beth O'Hara, FN

Kelly McCann, MD

Mastering Mast Cell Activation

Summit Day 2 Talks

Trudy Scott, CN – GABA Support vs Benzodiazepines in MCAS

Leonard Weinstock, MD – Sorting out those GI symptoms in MCAS, POTS and Dysmotility

Becky Campbell, DC – Histamine Intolerance and MCAS

Bruce Hoffman, MD – Whole Person Healing with 7 Steps of Health and Transformation

Bob Miller, MD – Cutting Edge Genetics in MCAS

Mary Ackerley, MD – Neuropsychiatric Presentations of MCAS - Oxytocin for Safety

Tom O'Bryan, DC – Mast Cell Activation Syndrome and Autoimmunity

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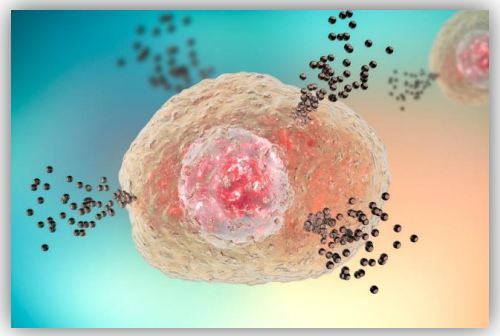

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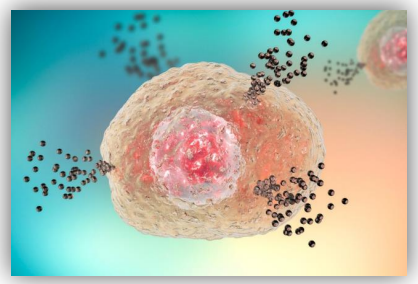

MCAS 101 Topics for Today

- Intro to Cell Danger Response
- Mold Toxicity & MCAS

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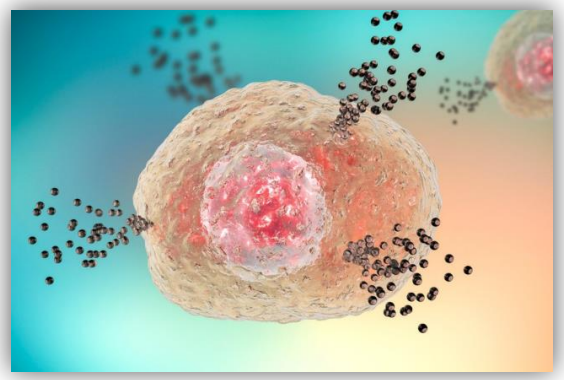

Cell Danger Response: Sensitivities & MCAS

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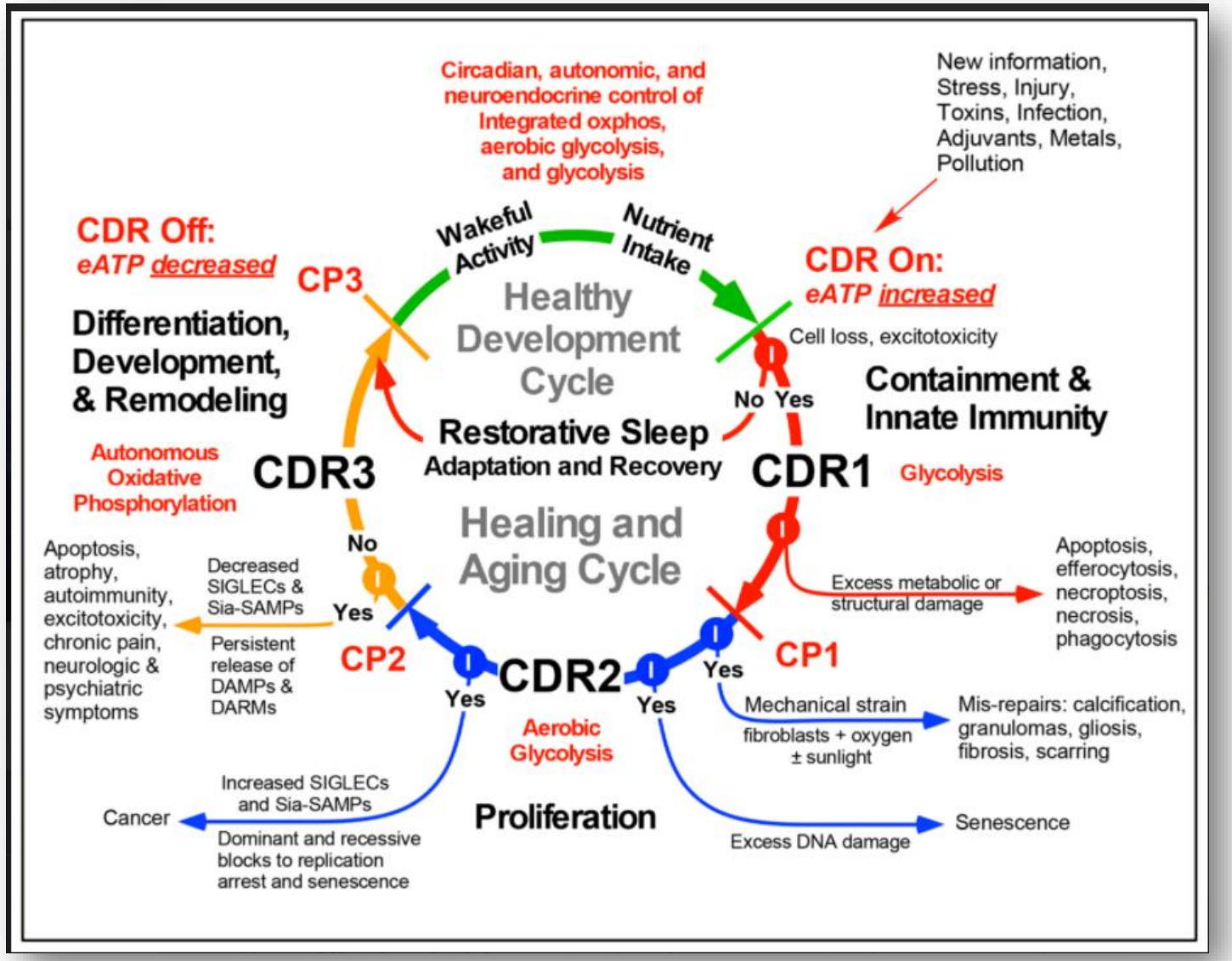
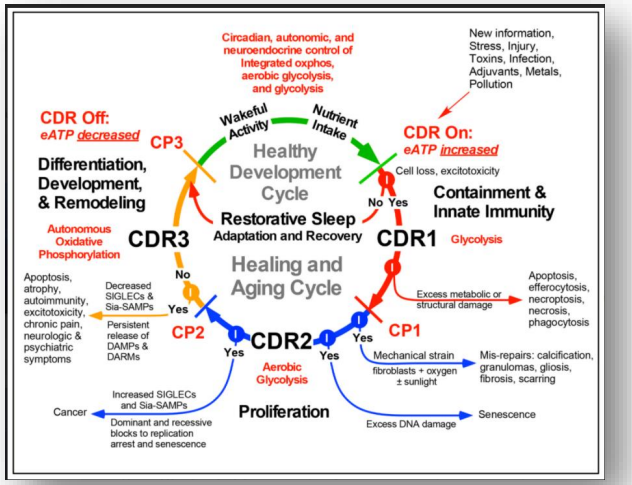
Cell Danger Response & Sensitivities/MCAS



Naviaux R. K. (2019). Incomplete Healing as a Cause of Aging: The Role of Mitochondria and the Cell Danger Response. Biology, 8(2), 27. https://doi.org/10.3390/biology8020027

Cell Danger Response & Sensitivities/MCAS

- Stiffening of cell membranes
- Methylation changes
- Glutathione production changes
- Gene expression changes
- Vitamin D decreased
- HDC activity increased -> increased mast cell/eosinophil activity
- Heme activity altered (can increase porphyrins)
- Tryptophan shunted away from serotonin/melatonin to kynurenic and quinolinic
- Metals accumulate
- Bowel changes, including microbiome
- Mitochondrial changes
- Sleep cycles and fatigue levels changed
- Significant epigenetic changes



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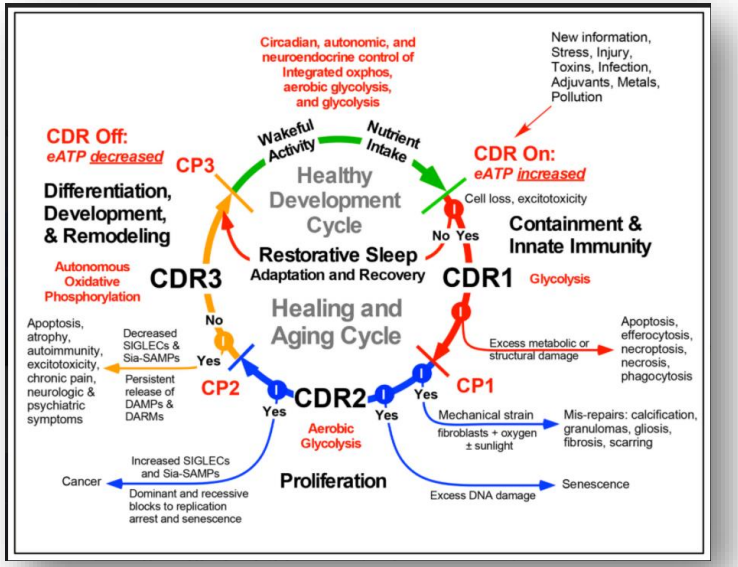
CDR is often why many struggle with:

- Phosphatidylcholine too early
- High dose methylation supports early on
- B6 as P'5'P early on – supports increased HDC activity
- For some, low carbs are a problem
- Metal detox before mold is addressed
- Antimicrobials for gut before mold is addressed
- Mitochondrial supports early on

These start working AGAINST CDR.



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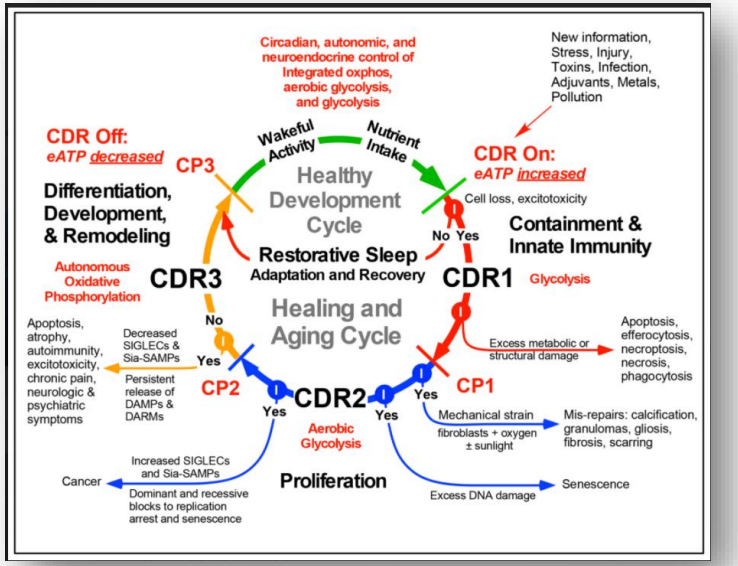
What Is the REAL Problem?

- Cell Danger Response tells us Mast Cell Activation Syndrome, gut imbalances, hormone imbalances, etc. are NOT the problem
- The underlying pathogens, toxicity, stressors, and genetic weaknesses are the problem
- According to this model, these things are an expression of Cell Danger Response.



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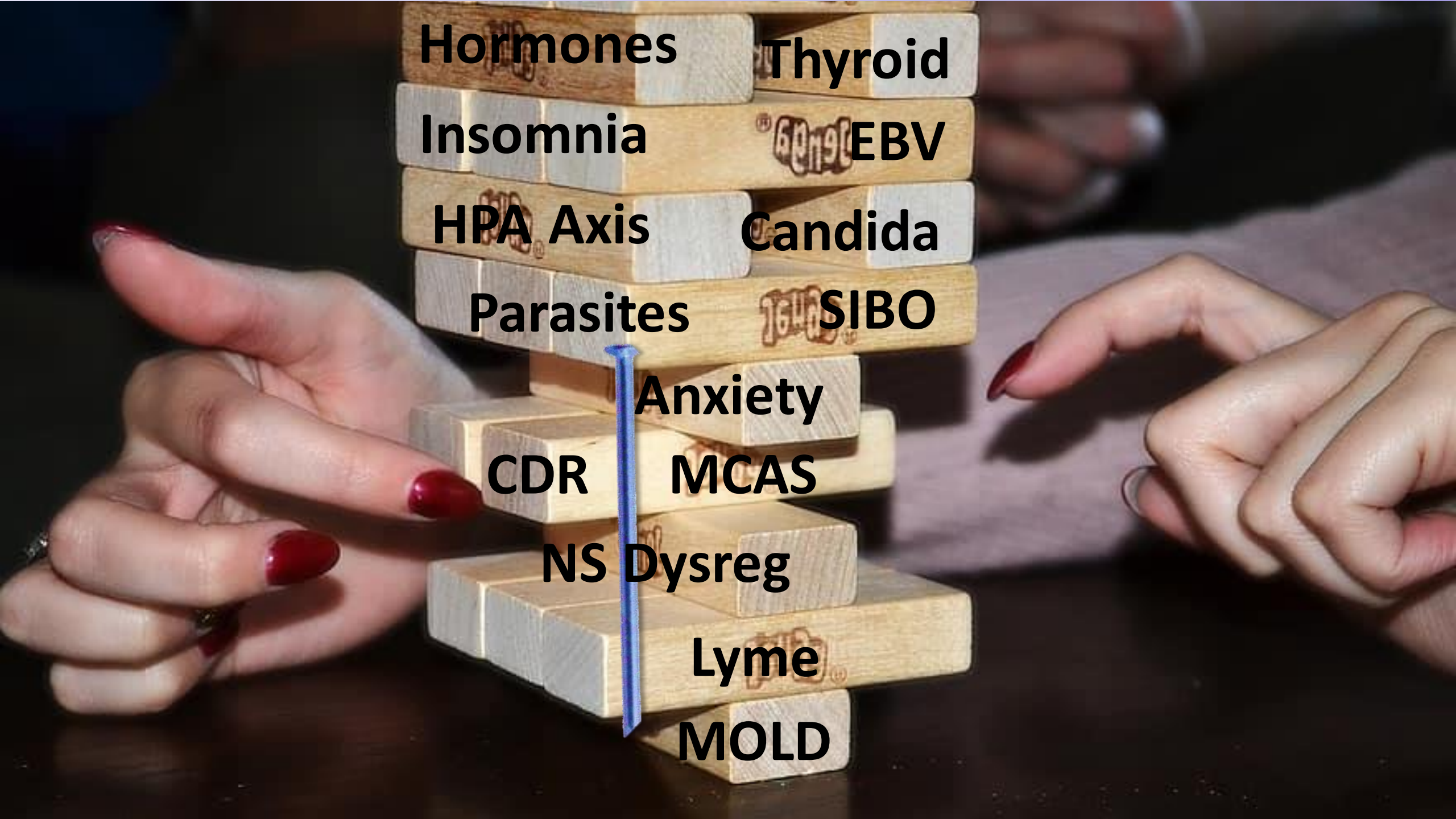
Hormones
Thyroid
Insomnia
EBV
HPA Axis
Candida
Parasites
SIBO
Anxiety
CDR
MCAS
NS Dysreg
Lyme
MOLD

When Mold Toxicity Isn't Addressed

It's very hard to fix:

- Chronic EBV infections
- Chronic Lyme and coinfections
- SIBO and other gut issues
- Hormone imbalances
- Sleep issues
- Mast Cell Activation
- Histamine Intolerance
- Salicylate Intolerance
- Heme Dysregulation
- Heavy Metals

Mastering Mast Cell Activation

An Order of Operations in MCAS for Sensitivities

Order of Operations in MCAS

MC360® Method

1. Stabilization
2. Gentle Detox
3. Advanced Support Protocols
4. Rebuilding
5. Optimizing for Long Term Health

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Stabilization – MC360® Method

Stabilization – MC360® Method

- Nervous System Rebooting
  - Limbic
  - Vagal
  - Structural
  - Emotional health
  - Trauma soothing (but not addressing or revisiting)
  - Chronic illness grief support
  - Practical tools for emotional and social life challenges
  - Returning to joy and gratitude

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Stabilization – MC360® Method

- Mast cell calming and immune balancing
- Clean up mold environmental exposures
- Clean up other triggers
  - Environmental, like EMFs, VOCs, natural Gas, carbon monoxide
  - Food triggers
  - Other environmental and food/water borne chemicals
- Optimize hydration and electrolytes
- Support GI motility; Resolve any constipation, Support microbiome

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Stabilization – MC360® Method

- Support Sleep
- Hormone support introduction
- Blood Sugar balancing
- Nutrient supports and balancing
- Assess Heme Pathway and KPUs if needed
- Support connective tissue and support bone health if needed
- Assess coagulation

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Gentle Detox – MC360® Method

Gentle Detox – MC360® Method

- Targeted binders for mycotoxins
- Lymph supports and movement, as tolerated
- Kidney/liver/bile supports, if needed
- Methylation supports, if needed
- Fungal colonization supports, if needed
- Biofilm busters, if needed

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Advanced Support Protocols – MC360® Method

Advanced Support Protocols – MC360® Method

- Support during other vectors (ie. bacterial, viral, parasitic, etc)
  - Tickborne vectors first
  - SIBO remaining steps
  - Remaining bacterial, viral, parasitic vectors
- Dental concerns
- Advanced bone health supports
- Airway restoration and palate expansion, if needed
- Heavy metals

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Rebuilding – MC360® Method

Rebuilding – MC360® Method

- GI rebuilding, microbiome and gut lining
- Mitochondrial rebooting
- Micronutrient reboot
- Hormone balancing for long term health
- Regenerate tissues where needed, including peptides

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Optimizing for Long Term Health – MC360® Method

Optimizing for Long Term Health – MC360® Method

- Genetic optimization
- Maintenance plan for optimal health
- Resolve remaining traumas
- Living your best life
- Any other concerns

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The MC360® 3 Levels of Sensitivities

- **Robust system** – you can take almost any supplements or medications you need at any amount; other than perhaps gluten or dairy, you don't struggle with foods
- **Sensitive system** – tolerating some supplements and medications, but you have to onboard them carefully and some really backfire for you; you may have some food intolerances as well
- **Hypersensitive system** – tolerating less than 5 supplements or medications (or none) and struggling with a lot of food sensitivities

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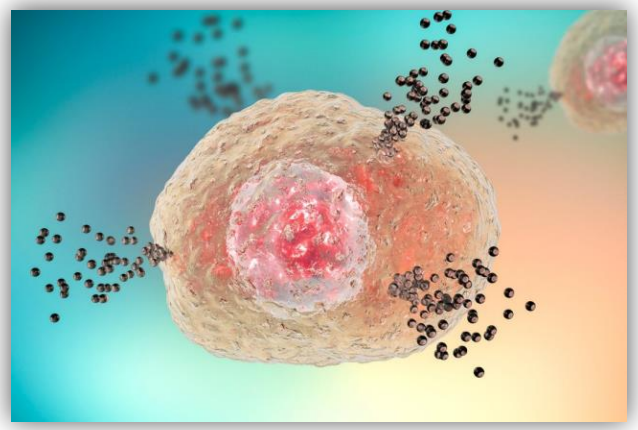

Your Next Step If You Have MCAS

Special Summit Discount – 25% off any 1 course
Only through end of the summit!

mastcell360.com/courses/
Coupon Code: 2023summit

If you're not sure which course is right for you:

Hypersensitive	Mast Cell Nervous System Reboot
Sensitive	Top 8 Mast Cell Supporting Supplements Master Class
Robust	MC360® Precision Mold Master Class

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Your Next Step if you have MCAS

Special Summit Discount – 35% off bundle of all 3 courses
Only through end of the summit!

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MC360® Practitioner Practicum

6-month training per stage of the MC360® method

1st 6 months Level 1: Stabilization:

- MCAS Foundations
- Diagnostics
- Cell Danger Response
- 5 aspects of healing
- 3 Levels of Sensitivities
- Addressing Hypersensitivities
- Level 1, 2, and Advanced Mast Cell Supports
- Building flare plans
- Working with children
- Neurology and Mast Cells
- Evaluating and addressing nervous system dysregulation
- Addressing Triggers Comprehensively
- Histamines, Oxalates, Salicylates, FODMAPs, Lectins, Thiol Sensitivities
- Role of the Therapeutic Relationship
- Assessments and protocols used in the Mast Cell 360 clinic

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MC360® Practitioner Practicum

Special Summit Discount – 25% off
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Learn more and register: Mastcell360.com/hcp

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Practitioners only
Must have a medical license or health coach certification with functional medicine training background

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Day 1: Big picture of MCAS and frameworks for healing

Day 2: Cell Danger Response and Order of Operations in MCAS

Day 3: Top MCAS Environmental Toxin Triggers

Day 4: Mold Toxicity and MCAS Special Considerations: Salicylates, Oxalates, and Sulfur Intolerance

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Day 7: Improving your GI system with MCAS; Histamine, Lectins, and FODMAPs

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Your co-hosts

Kelly McCann, MD

Beth O'Hara, FN

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Summit Day 3

Carolyn Ledowsky, ND – Genetic Polymorphisms, Inflammation and Histamine

Lyn Patrick, ND – Total Body Burden of Environmental Chemicals and MCAS

Andrew Maxwell, MD – POTS and Dysautonomias, Spiky-Leaky Syndrome

Jeffrey Smith – GMO Foods and Pesticides and Their Impact on Health and MCAS

Andrew Salisbury, Purity Coffee – The Health-Conscious Coffee Approach with MCAS

Roger Billica, MD – Easy and Highly Effective EMF Protection

Arin Schultz, Naturepedic – Better Sleep Hygiene

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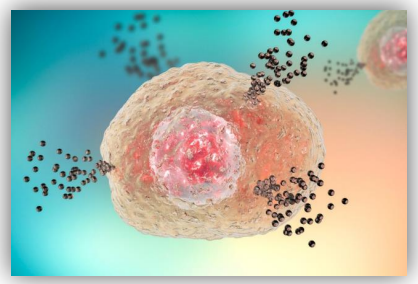

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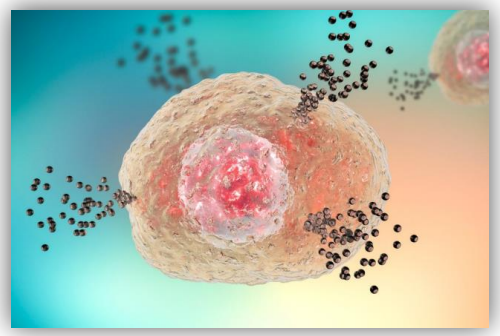

MCAS 101 Topics for Today

Day 3: Top MCAS Environmental Toxin Triggers

- Total Body Burden
- Alphabet Soup of Chemical Toxicants
- Multiple Chemical Sensitivity and MCAS – are they the same thing?
- Genetic determinants of Illness
- Toxicants in your Home
- Toxicants in your Habits
- Personalized Approach

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Definitions

- Poisons – Toxicants that can cause immediate illness or even death in small amounts.
- Toxins – Specific toxins produced by biological organisms like Botulinum toxin or mold toxins
- Toxicants – Substances that produce adverse biological effects. Can have both acute and chronic impacts.

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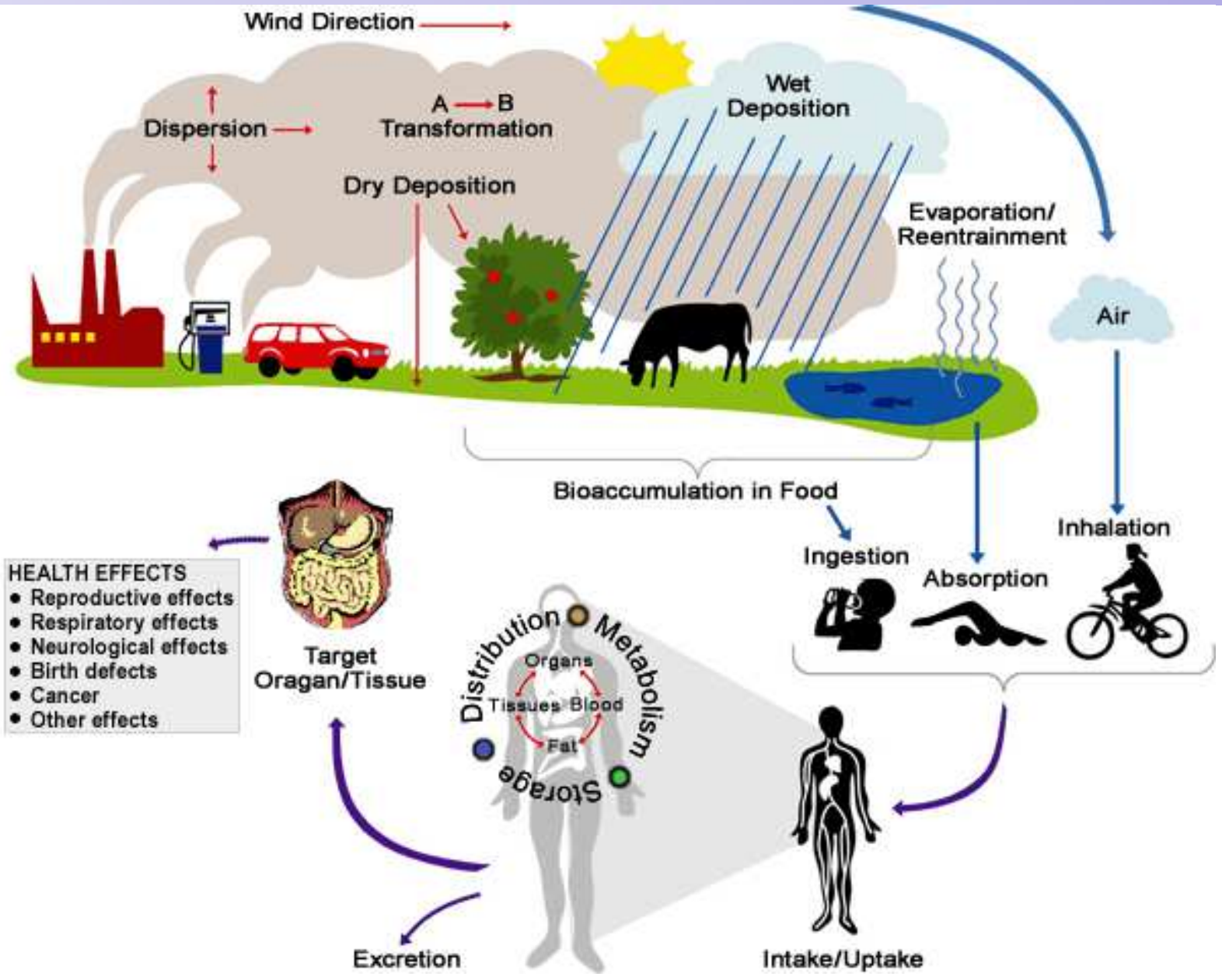
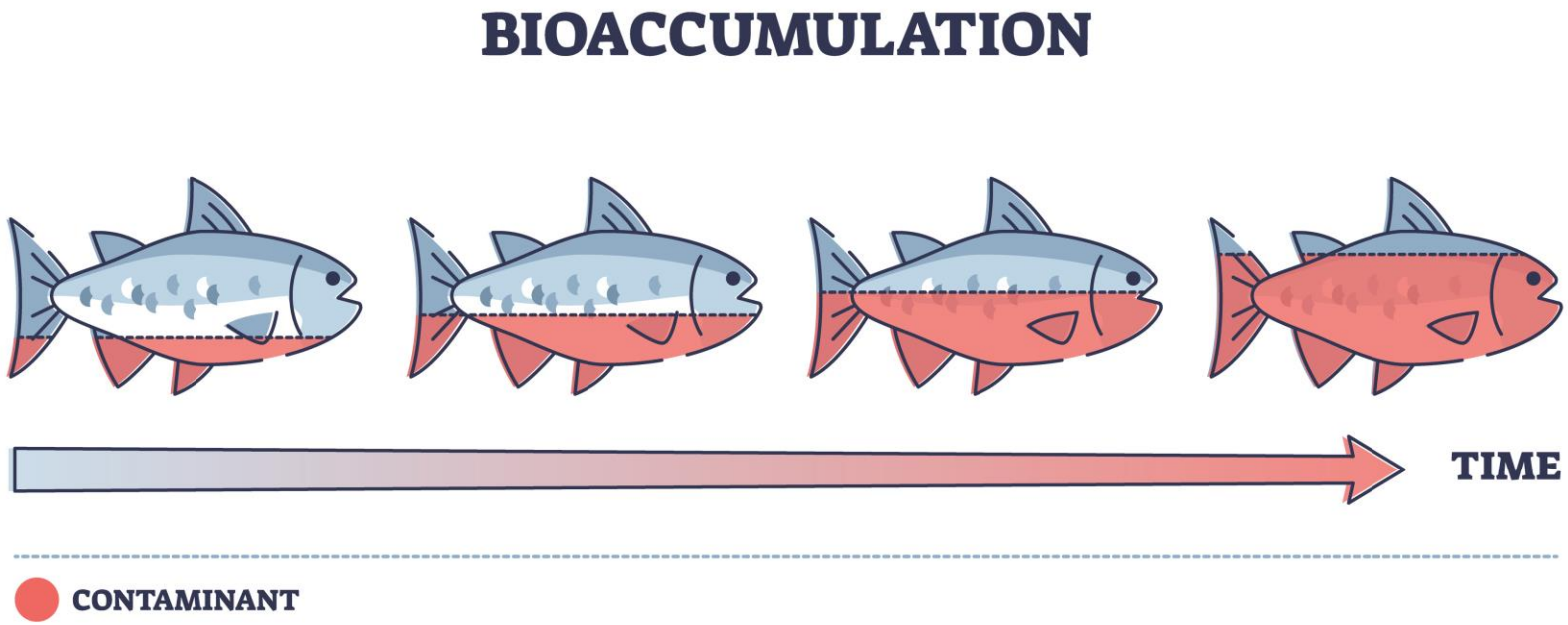
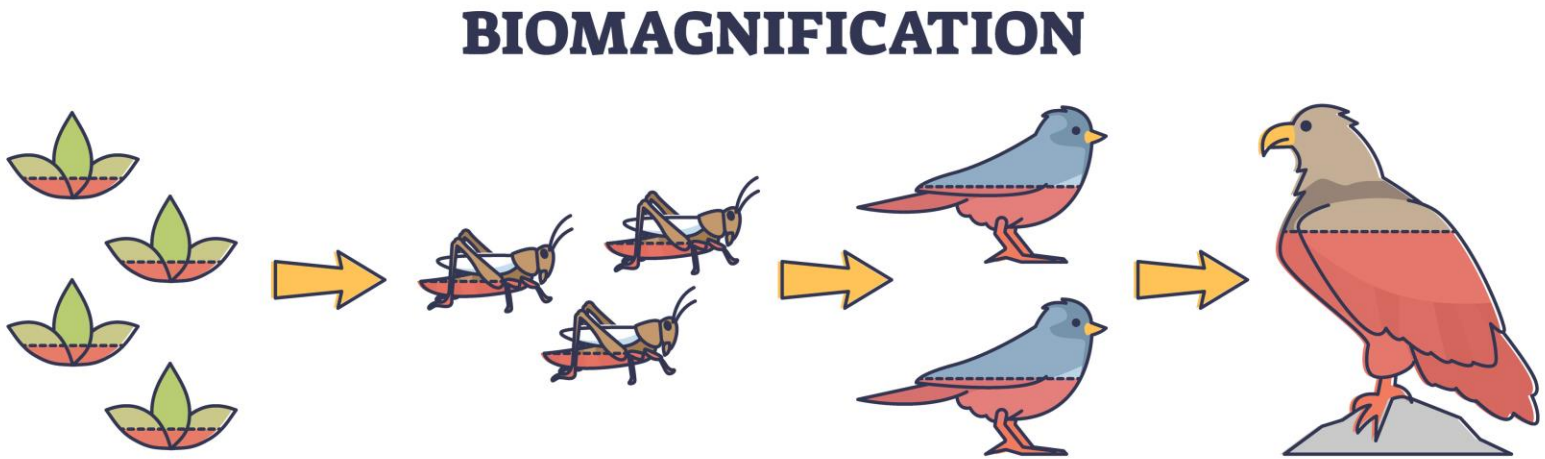
How Toxicants get into the Environment



Definitions – Bioaccumulation and Biomagnification





Body Burden

- A recent biomonitoring survey of Americans by the Environmental Working Group found traces of 232 environmental chemicals, including chemicals from plastics, Bis-phenol A, pesticides and flame retardants in the cord blood of 10 minority babies.
- In another study of all environmental toxicants (3820 chemicals and their metabolites) tested in humans and other mammals, 3221 were found in the majority of plasma tested. 1485 chemicals were common in ALL 7 species tested.

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Body Burden - Toxicants are Ubiquitous

- Exposure to environmental toxicants is pervasive.
- According to the CDC National Report on Human Exposure to Environmental Chemicals: the following are found in the blood or urine of almost all (over 95% of a representative sample of Americans)
- Polychlorinated biphenyl (PCBs)
- Bisphenol-A (BPA - plasticizer)
- Phthalate metabolites (plasticizers)
- Polybrominated diphenyl ethers (PBDE) (flame retardants)
- Perfluorooctanoic acid (PFOA)-used to make Teflon, Stainmaster, Gortex)
- Methyl tert-butyl ether (MTBE) – gas additive

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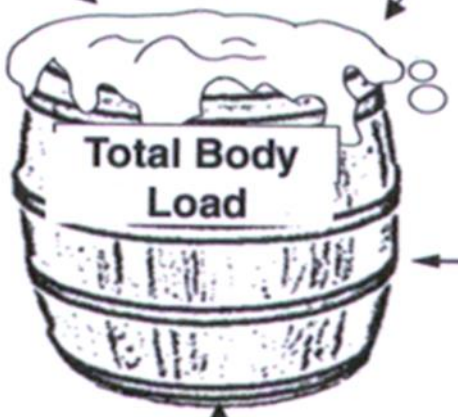
Body Burden

TOTAL ENVIRONMENTAL LOAD



Air Contamination

Outdoor

sulfur compounds
nitrous compounds
ozone
carbon monoxide
particulates
EMF - fields
lead, cadmium, mercury,
pesticides, molds algae, etc.

Indoor

natural gas, oil, coal
pesticides
formaldehyde
solvents
fumes
carpets + glues, etc.

Physical

EMF
radar
radon
microwave
sun spots
heat
cold
postive ions

Water

pesticides - herbicides
solvents
chlorine
gasoline + additives

Food - Man Made

pesticide
coloring
dyes
preservatives
cooking
transportation

Food - Natural

botulism - bacteria
parasites
virus
solinin
night shades
glycosides, etc.
mold

Biological

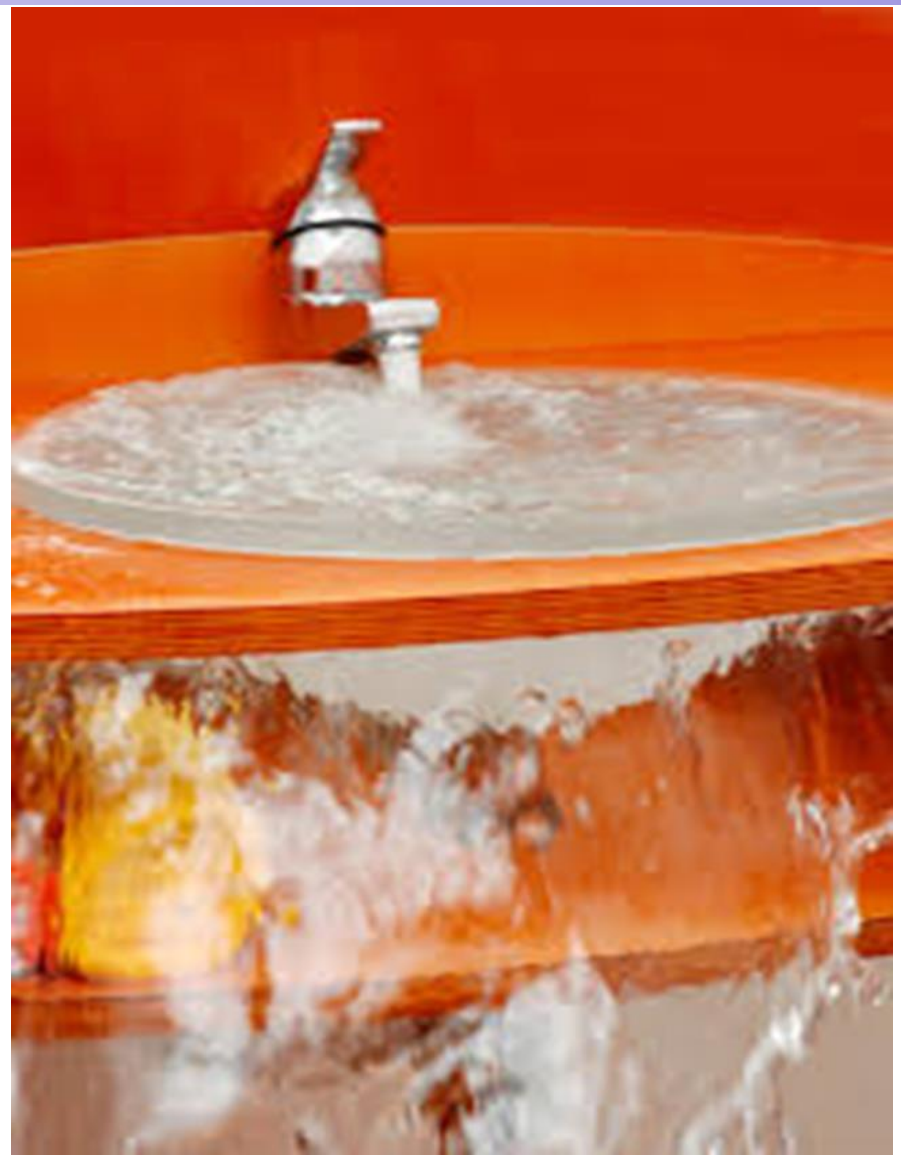
pollen
molds
foods
parasites
virus
bacteria

Specific Environmental Load

i.e., Streptococcus hemolyticus,
chlorodane, ionizing radiation

Body Burden – Sink Model

- Genetics – Our DNA inheritance
- Epigenetics – Our ancestral exposures
- Our birth exposures
- Nutrition and lifestyle choices
- Daily living exposures
- Food, Air, Water, Buildings, Environment exposures
- Chronic Infections
- Electro-magnetic frequency exposures
- Trauma and chronic stress
- Capacity for detoxification



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Body Burden – Alphabet Soup of Toxicants

Persistent Pollutants

- Chlorinated pesticides (DDT, DDE)
- Polychlorinated biphenyls (PCBs)
- Polybrominated diphenyl ethers (PBDEs)
- Perfluorocarbons (PFCs, PFOA, PFOS, PFASs)
- Toxic Metals
- Glyphosate

- **Non-Persistent Pollutants**
- Pesticides (Organophosphate)
- Bisphenol A (BPA)
- Phthalates
- VOCs and Solvents – Benzene, Toulene, Ethylbenzene (BTEX) Styrene
- Chlorinated Solvents Trichloroethylene (TCE)
- Particulate Matter (PM)
- Polyaromatic hydrocarbons (PAHs)
- Parabens
- Triclosan

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Multiple Chemical Sensitivity

- Historically Controversial disorder: Adverse reaction to ambient doses of toxic and non-toxic chemicals contained in air, food, and water.
- Triggered by: Major one time event or Low levels of cleaning products, diesel exhaust, formaldehyde, plastics, carpet, pesticides, tobacco smoke, etc.
- Numerous Symptoms: nausea, dizziness, headache, runny eyes, chest and throat pain, joint pain, dyspepsia, fatigue, lack of concentration, memory difficulties, depression, anxiety, mood disruption, among others.
- The history of food and chemical sensitivity stretches back over 2000 years to when Hippocrates described people who were made ill by certain food and drink after they fasted or just could not tolerate a food that others could.

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Multiple Chemical Sensitivity

- William Rae, MD (1935-2018)
- Cardiovascular Surgeon turned Environmental Medicine physician
- Founded Environmental Health Center of Dallas in 1974 and American Academy of Environmental Medicine.
- Wrote 10 textbooks on Environmental Medicine, including 2 on EMF and a 4- volume set of Chemical Sensitivities.

Investigating Environmental Sensitivities May Resolve Uncurable Illness!

Multiple Chemical Sensitivity

- Claudia Miller, MD – Chemical Intolerance, Toxicant Induced Loss of Tolerance, Multiple Chemical Sensitivity
- QUEESI questionnaire.
- https://tiltresearch.org/qeesi-2/
- Additional resources and Bibliography
- http://www.chemicalsensitivityfoundation.org/
- Dr Miller and Dr Afrin article 2021 – 59% of MCAS patients met criteria for CI. Symptoms and intolerance patterns were nearly identical!

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Chemical Sensitivity

Common Triggers:

- World Trade Center Disasters
- Gulf War (burn pits, etc)
- Chemical spills
- Floods and Wild Fires
- Building Remodels
- Pesticide exposures
- Surgical Implants
- Accumulation of small exposures

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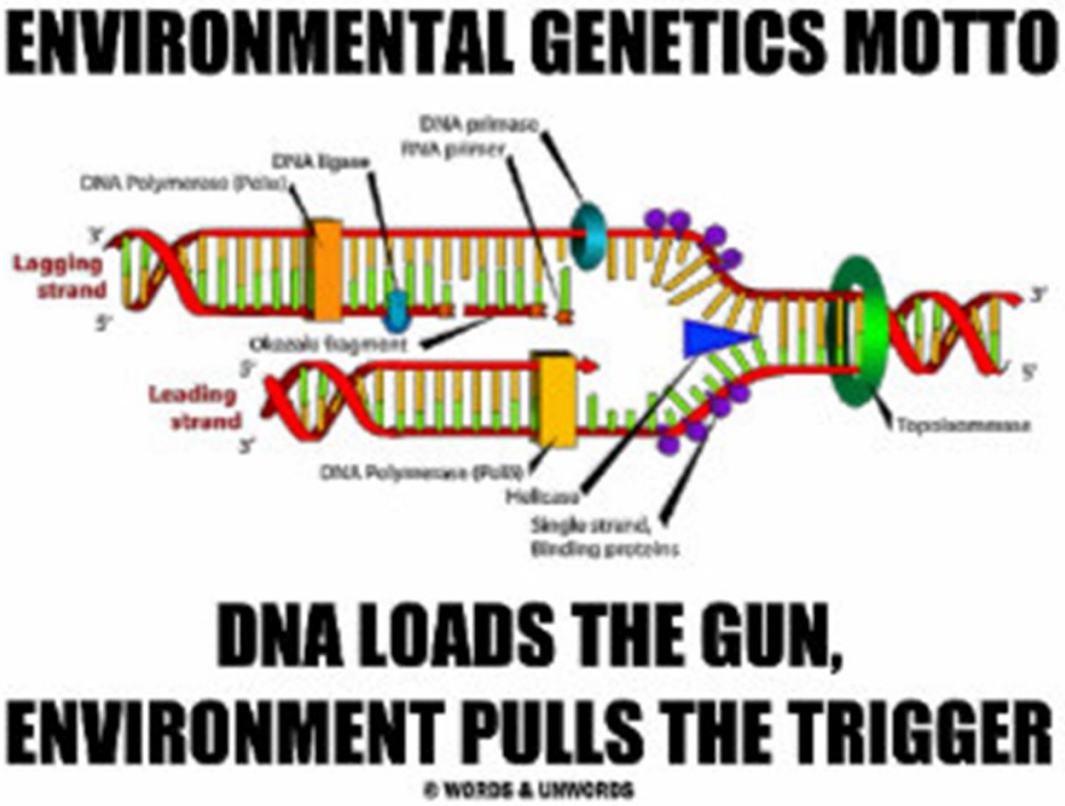
You are not JUST your genetics



- Solving your unique issues requires understanding...
- Your genetics AND
- Your health
- Your history
- Your home
- Your habits

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Your Home

- How old is your home?

  Homes build before 1978 may contain lead-based paint. Homes built before 1986 may contain leaded pipes.

- Do you have an attached garage? Do you park your car in it?

  Dozens of VOCs volatile organic compounds enter the house from the garage, including benzene which is a known carcinogen. Levels of benzene can be higher than having someone smoke cigarettes indoors!

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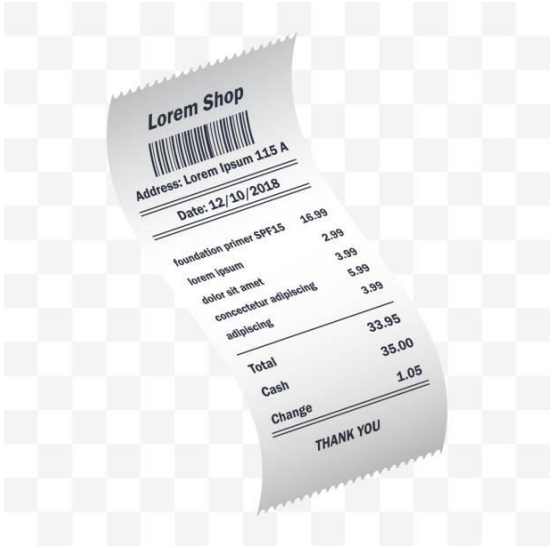
Your Habits

- Do you handle paper receipts?

- Do you ever eat canned foods? Or drink beverages out of cans?



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Your Habits

- Do you handle paper receipts?

- Do you ever eat canned foods? Or drink beverages out of cans?

Bis-phenols (A,S, and F) are all toxic endocrine and neurological disruptors. Studies show associations with: Fertility, Diabetes, Obesity, breast and prostate cancer, thyroid hormone disturbances, neurodevelopmental and neurodegenerative diseases and cardiovascular disease.

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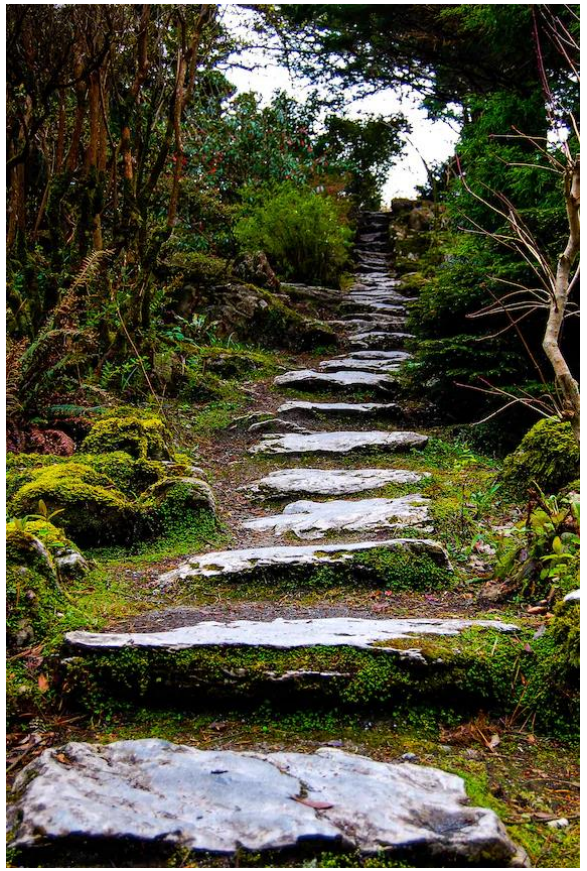
Your Unique path

- You are One of a Kind!
- You are the Master over your health journey
- Find your health care team
- Discover your genetics, root causes, and
- Take a survey of your environmental exposures
- Begin with Pre-Tox (preparing for detox)
- Re-connect with your Intuition and let guide you
- YOU CAN HEAL!



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Next Step if You have MCAS

- For an individualized, Functional Medicine approach to your health working with Dr Kelly and her medical team. Visit:

https://thespringcenter.com/contact/

- For a Deep Dive to empower yourself with knowledge about your exposures. Check out Dr Kelly's in-depth Masterclass:

https://drkellymccann.com/mcas-how-to-regain-control/

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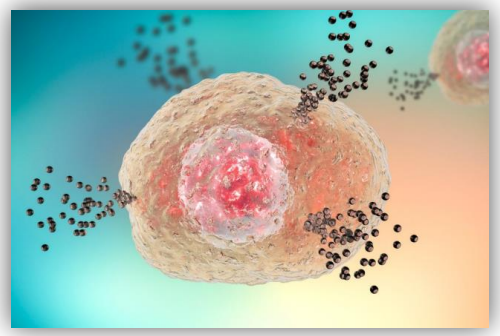

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Summit Day 4

Donald Dennis, MD - Missing Keys in Addressing Sinus Fungal Colonization

Tania Dempsey, MD – Advances in Medication and Nutraceutical approaches in Complex MCAS

Jenny Johnson, MSPT – Recovery from Chronic Illness and CIRS takes a Village

Kevin Ellis, INHC - Reversing Osteoporosis and Osteopenia

Michael Schrantz, CIEC – Mold Inspection

Amber Walker, DPT – MCAS and Connective Tissue Disorders: Healing the Terrain

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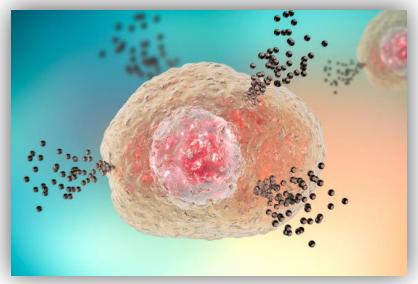

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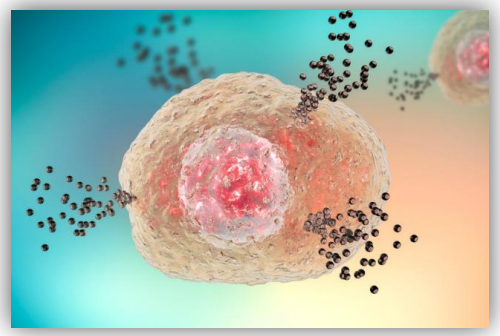

MCAS 101 Topics for Today

- What is Mold Toxicity?
- What is Mold Colonization?
- How common is Mold Toxicity?
- Symptoms of Mold Toxicity
- Mold Toxins & Mast Cells
- 3 Levels of Sensitivity in MCAS

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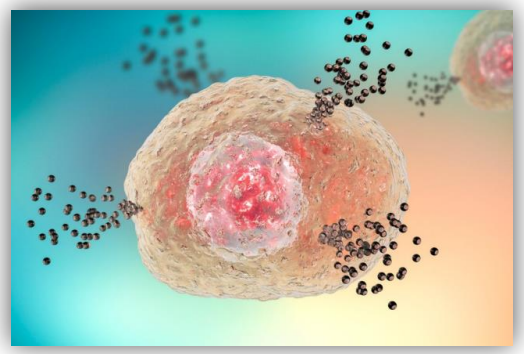

Presentations of Mold Toxicity

- Only Mold Toxins
- Mold Toxins with Mold Colonization
- Mold Allergy
- Mold Allergy with Mold Toxins only
- Mold Allergy with Mold Colonization and Mold Toxins

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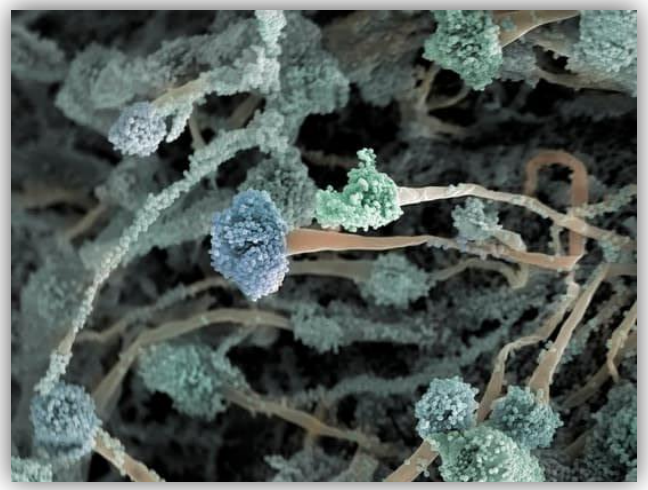

How Do You Get Mold Toxins?

- Inhaling them through nose and mouth
- Skin absorption
- Swallowing in food or drinks
- From mold colonization

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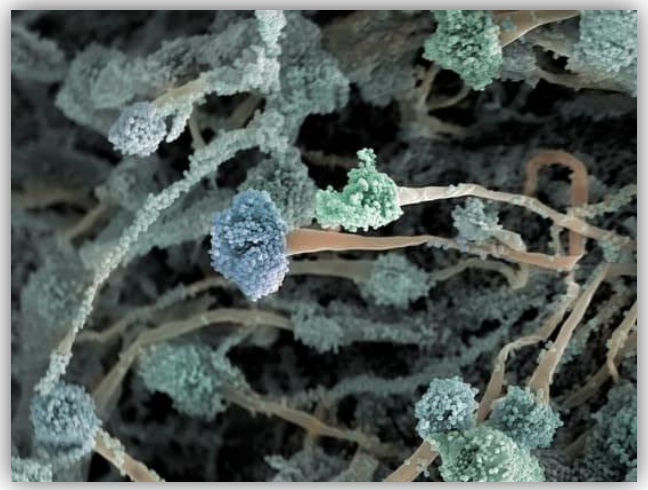

How Do You Get Mold Colonization?

Spores enter the body through:

- Mouth
- Nose
- Vaginal canal
- Ears
- Water and food consumption
- Spores can also lead to mold growth on the skin and nails
- Once the sinuses are colonized, swallowed mucous carries mold spores and mycotoxins to the GI tract

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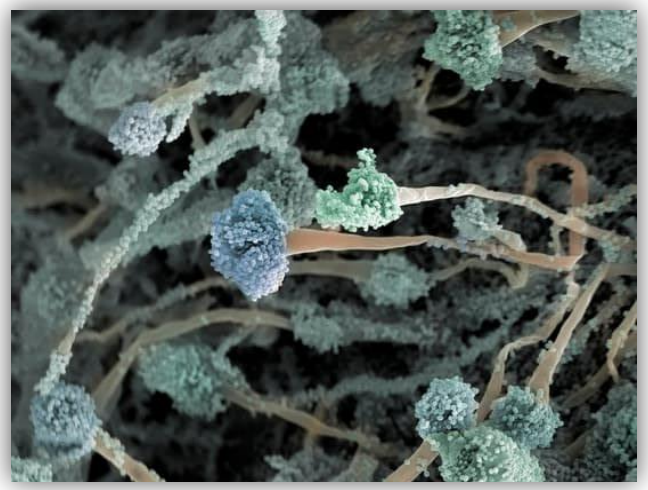

How Do You Get Mold Toxicity?

- Exposure through buildings with humidity >50%
- Exposure to water damaged buildings – enters through mouth, nose, vaginal canal, skin
- Food in developing countries
- Passes through the placenta and breastmilk to the fetus
- Exposure could have been years or decades ago

And/or

- Exposure could be ongoing in homes, workplaces, churches, schools, retail stores, friend/family members' homes, etc.

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Have you had Mold Exposure?

- Do you have a dirt crawl space under your current or a previous home?
- Is there a humidifier on your furnace?
- Ever lived in an old house/apartment or worked in an old building?
- Are there any musty smells in home, car, workplace?
- Do you have an evaporative A/C unit (aka swamp cooler?
- Is there any visible mold in the shower, under the vanity, anywhere?
- Do you have windows that leak?
- Does humidity in your home get above 50%?
- Have there been any water leaks (roofs, pipes, water heater, etc?
- Have you ever shampooed the carpets?
- Have you left a car window or trunk open when it rained?

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Symptoms of Mold Toxicity – 1 point for each

- Abdominal pain, IBS, constipation and/or diarrhea, nausea and vomiting
- Stubborn chronic SIBO
- Anemia
- Asthma, chronic sinus congestion, cough, shortness of breath
- Changes in appetite (increases or decreases)
- Difficulty with cognition: confusion, disorientation, “brain fog”, word finding, calculating numbers in head, concentration trouble, trouble with short-term memory
- Edema
- Eyes: excess tearing, blurred vision
- Excessive thirst, frequent urination
- Fatigue and/or weakness
- Frequent colds/other viruses

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Symptoms of Mold Toxicity – 1 point for each

- Headaches, migraines
- Impotence (men)
- Infertility (men and women)
- Interstitial Cystitis, urinary frequency, urinary urgency
- Increase in static shocks
- Joint pain, morning stiffness, muscle aches, cramps
- Menstrual issues (painful periods, heavy periods, loss of period)
- Metallic taste in the mouth
- Mood swings
- Night sweats, difficulty with temperature regulation (too hot or too cold)

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Symptoms of Mold Toxicity – 1 point for each

- POTS, low blood pressure, dysautonomia
- Sensitivity to bright light, sounds, and/or touch
- Sensitivity to foods, supplements, and/or meds
- Sinus issues, nasal polyps
- Sleep Issues
- Slow healing
- Tinnitus
- Tremor
- Unusual nerve pains – sometimes described as a lightning bolt or ice pick sensation, numbness, tingling
- Vertigo/dizziness

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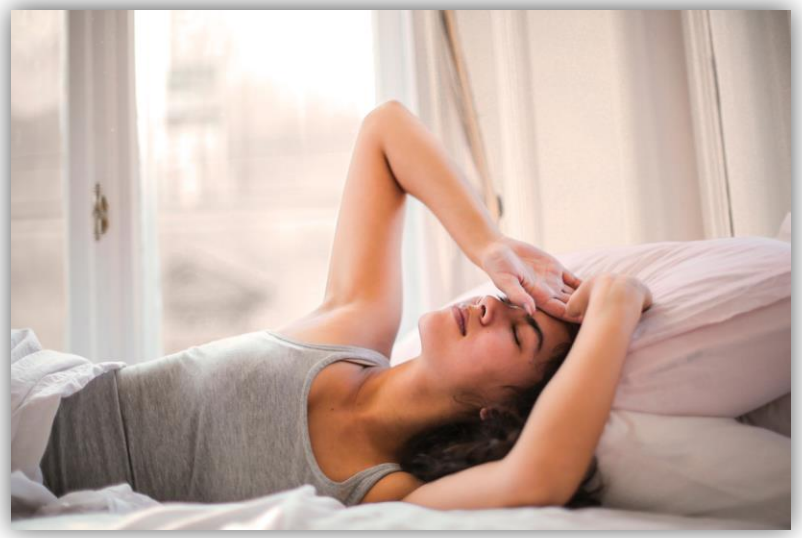

Definitely Consider Mold Toxicity – 5 points each:

- Atypical presentations: Alzheimer's, autoimmunity, Multiple Sclerosis, Parkinson's
- Asthma
- Autism Spectrum Disorders and Sensory Processing Disorders
- Biochemical anxiety, depression, depersonalization, derealization, mood swings
- Cancer history
- Chronic fatigue syndrome
- Chronic sinusitis
- Cognitive impairment, OCD

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Definitely Consider Mold for Those with:

- Fibromyalgia
- Hypermobility, skin over-elasticity
- Multiple chemical sensitivities
- Nasal Polyps
- Significant EMF sensitivity
- Significant sensitivities to light, sound, and/or touch
- Significant sensitivities to foods, supplements, and/or meds

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Unique to Mold (or Bartonella) – 10 points each

- Internal vibration/tremor
- Nerve pain – lightning bolt or ice pick type pain
- Strange skin sensations
- Sensitivities to everything (chemicals, supplements, medications, sound, light, touch, EMFs, etc.)
- Static shocks

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What's your total score?

0-5 = unlikely to have mold toxicity

5-15 = possible mold toxicity

15-25 = likely more toxicity

26 or more = highly likely to have mold toxicity

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Impact of Mold on Mast Cell-Cytokine Immune Response

Kritas, S. K., Gallenga, C. E., D Ovidio, C., Ronconi, G., Caraffa, A. l., Toniato, E., Lauritano, D., & Conti, P. (2018)

Spores are able to navigate in the airways of the lung and can be recognized trough toll-like receptor (TLR) signaling by the innate immune cells including MCs. Activated MCs release preformed mediators including histamine, proteases (tryptase, chimase), pro-inflammatory cytokines/chemokines and they also generate arachidonic acid products. **MCs activated by fungi provoke an increases [SIC] of PGD2 levels and lead to hypersensitivity diseases which present signs such as irritation of the respiratory tract and eyes, recurrent sinusitis, bronchitis, cough and neurological manifestations including fatigue, nausea, headaches and brain fog.** Therefore, **fungi activate the innate immune response through the TLRs,** leading to the release of myeloid differentiation factor 88 (MyD88) which, with a series of cascade reactions, induces the stimulation of AP-1 and NF-kB with subsequent activation of inflammatory IL-1 family members. **Here, we report that fungi can activate MCs to secrete pro-inflammatory cytokines** which may be inhibited by IL-37, a new anti-inflammatory IL-1 family member.

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The Contribution of Mast Cells to Bacterial and Fungal Infection Immunity

Adrian M Piliponsky, Luigina Romani (2018)

Abstract

Mast cells are hematopoietic progenitor-derived, granule-containing immune cells that are widely distributed in tissues that interact with the external environment, such as the skin and mucosal tissues. It is well-known that mast cells are significantly involved in IgE-mediated allergic reactions, but because of their location, it has also been long hypothesized that mast cells can act as sentinel cells that sense pathogens and initiate protective immune responses. Using mast cell or mast cell protease-deficient murine models, recent studies by our groups and others indicate that mast cells have pleiotropic regulatory roles in immunological responses against pathogens. In this review, we discuss studies that demonstrate that **mast cells can either promote host resistance to infections caused by bacteria and fungi or contribute to dysregulated immune responses that can increase host morbidity and mortality. Overall, these studies indicate that mast cells can influence innate immune responses against bacterial and fungal infections via multiple mechanisms**. Importantly, the contribution of mast cells to infection outcomes depends in part on the infection model, including the genetic approach used to assess the influence of mast cells on host immunity, hence highlighting the complexity of mast cell biology in the context of innate immune responses.

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Mechanisms of Mycotoxin-Induced Neurotoxicity through Oxidative Stress-Associated Pathways

Doi, K., & Uetsuka, K. (2011)

Among many mycotoxins, **T-2 toxin, macrocyclic trichothecenes, fumonisin B1 (FB1) and ochratochin A (OTA) are known to have the potential to induce neurotoxicity** in rodent models. T-2 toxin induces neuronal cell apoptosis in the fetal and adult brain. Macrocyclic trichothecenes bring about neuronal cell apoptosis and inflammation in the olfactory epithelium and olfactory bulb. FB1 induces neuronal degeneration in the cerebral cortex, concurrent with disruption of de novo ceramide synthesis. OTA causes acute depletion of striatal dopamine and its metabolites, accompanying evidence of neuronal cell apoptosis in the substantia nigra, striatum and hippocampus.

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Mold's Role in SIFO, SIBO, and MCAS

Mold and Mast Cells

- Mold causes disruptions in the gut membrane
- Mold and mycotoxins can cause oxidative stress, inflammation
- Molds can colonize in the GI tract
- Mast cells are triggered by mold and mycotoxins
- More mast cell activation :(

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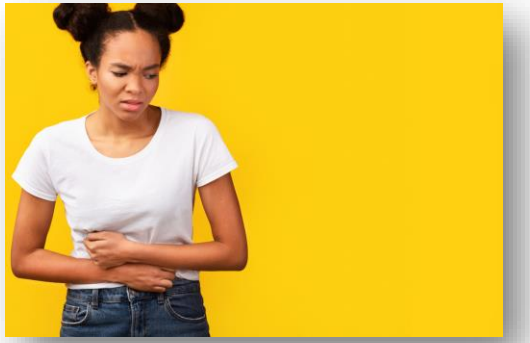

SIFO and Mycotoxins

- SIFO stands for Small Intestinal Fungal Overgrowth
- More accurate to say a fungal imbalance
- Two most common culprits behind SIFO
  - Candida
  - Mold Colonization in the gut
- Mold and candida create mycotoxins
- Aspergillus produces oxalates
- Significant disrupts immune system in gut, opening the door for SIBO, parasites, autoimmunity, etc.

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How Mold Toxicity Affects SIBO

Mold toxins can worsen SIBO by:

- disrupting gut bacteria
- affecting ability to keep gut bacteria levels in check
- contributing to leaky gut
- affecting entire immune system so GI immune system can't keep SIBO in check

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Mold's Role in SIFO, SIBO, and MCAS

- SIBO and SIFO often occur together in people with Mold Toxicity
- Mold toxins weaken the part of the immune system that should keep bacteria and yeasts (fungus) from overgrowing
- Mold disrupts your system so it doesn't attack mold spores!
- Molds can produce oxalates when colonized leading to more symptoms
- SIBO, SIFO, and Mold Toxicity are all mast cell triggers

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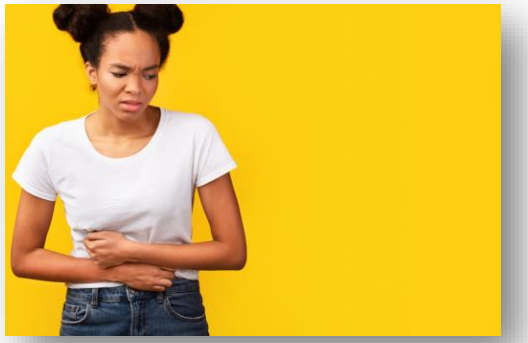

Mold's Role in Food Intolerances

- Increases histamine and negatively affects histamine pathways
- Aspergillus produces oxalates, which weaken gut lining, cause inflammation, and provide a food source to candida increasing impact of dietary oxalates
- Depletes vitamins and minerals needed to break down histamine and excrete oxalates
- Affects microbiome and salicylate degrading pathways
- Increases gut irritation and leaky gut, driving more MCAS
- Leaky gut allows food particles into blood stream triggering IgE allergies and IgG sensitivities as well as immune reactions to lectins

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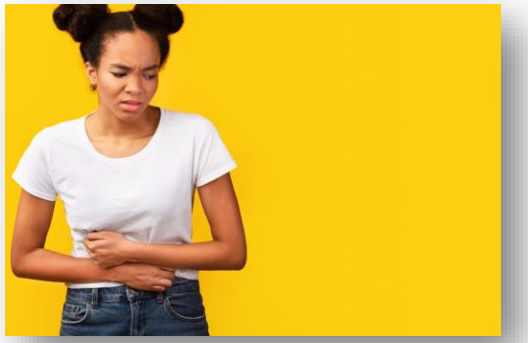

What Are Oxalates?

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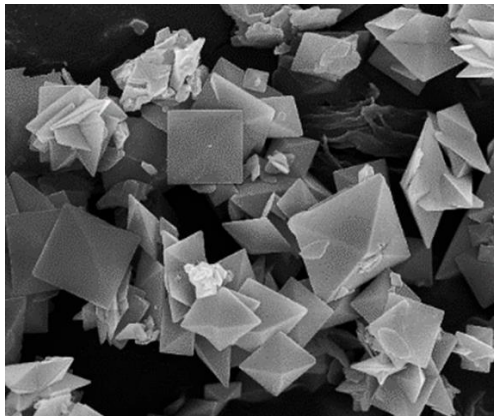
What Are Oxalates?

- Oxalic acid is an organic compound found in many plants
- Oxalic acid binds to minerals producing oxalates
- Oxalates are part of a plant's defense mechanism
- Under a microscope, look like shards of glass/ razor blades



Hsu, Yu-Chao & Pan, Li-Cheng & Shiau, Lie-Ding. (2021). A Photomicroscopic Study on the Growth Rates of Calcium Oxalate Crystals in a New Synthetic Urine Without Inhibitors and with Various Inhibitors. Crystals. 11. 223. 10.3390/cryst11030223.

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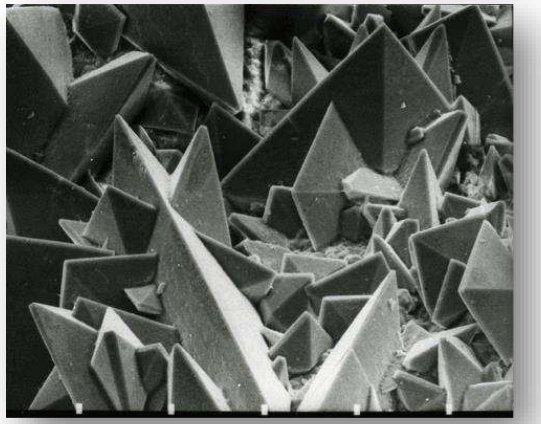

Source: https://upload.wikimedia.org/wikipedia/commons/c/cb/Surface_of_a_kidney_stone.jpg
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Oxalate Overload Symptoms

- Fibromyalgia
- Vulvodynia
- Interstitial Cystitis
- Joint pains
- Osteoporosis and Osteopenia
- Arthritis
- Kidney stones
- Cataracts
- PCOS
- Thyroid dysfunction
- Arthralgias
- Ear crystals/vertigo

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Highest Oxalate Foods

- Beets
- Swiss chard
- Rhubarb
- Sweet potatoes
- Spinach
- Almonds

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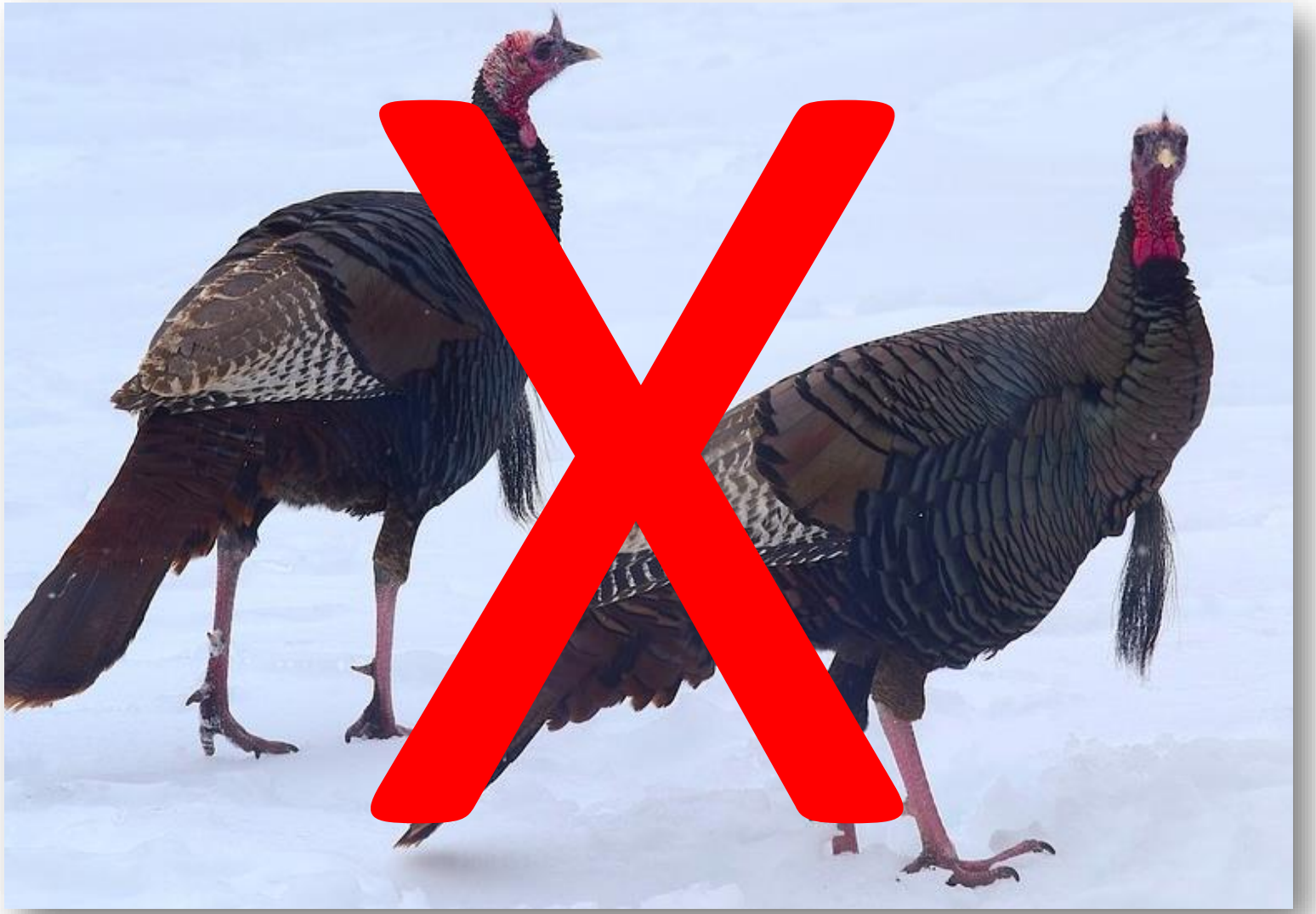
Decreasing high oxalate foods

Do NOT stop oxalate foods Cold Turkey



Oxalate Dumping

What are Salicylates?

What Are Salicylates?

- Salicylates are found in plants
- Protect plants from insects, bacteria, and fungal diseases.
- Many herbs and spices are high in salicylates.
- Also found in fruits, vegetables, nuts seeds and oils.

Surprising places salicylates are found:

- Cosmetics
- Personal Care Products
- Aspirin
- Creams
- Cleansers
- Toothpastes
- Perfumes
- And even some Essential Oils

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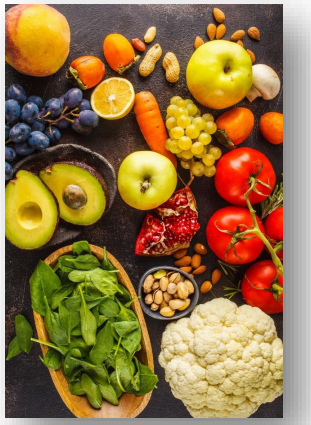
Symptoms of Salicylate Intolerance

- Aspirin allergy
- Ear ringing (tinnitus)
- Nasal congestion
- Sinus infection and inflammation
- Nasal or sinus polyps
- Chronic cough
- Asthma
- Itchy skin, Hives
- Rashes
- Abdominal pain
- Gas
- Diarrhea
- Inflammation of the
- GI tract, including colitis
- Tissue swelling
- Fatigue



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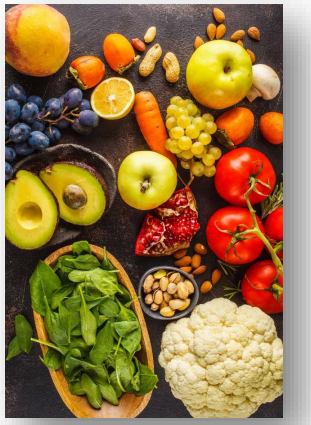
Causes of Salicylate Intolerance in MCAS

- Taking in too many salicylates (through food or supplements)
- Mold toxicity clogging the detox pathways that get rid of salicylates
- Lack of needed nutrients for reducing salicylates in your body
- Issues with oxalates
- Lack of sulfur in diet (from meats and veggies like broccoli, cauliflower, onions, and garlic)
- Too many inflammatory mast cell mediators like histamine



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What is sulfur?

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Symptoms of Sulfur Intolerance

- Hives, itching
- Headaches
- Nausea
- Diarrhea
- Asthma, breathing difficulties
- Fatigue
- Flushing
- Brain fog

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Causes of Sulfur intolerance

- CBS genetic variants
- Gliotoxin – sulfur increases toxicity
- Oxalate dumping
- Hydrogen sulfide SIBO
- Havey metals

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Sulfur is found in

- Cruciferous veggies
- Onions, garlic
- Meat
- Nuts, grains, legumes
- Green, leafy vegetables
- Epsom salts
- Glutathione, NAC, alpha lipoic acid, glucosamine sulfate etc.

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Sulfur intolerance remedies for healing

- Do NOT stop sulfur foods long term – can take a few weeks break, but long term can cause major issues
  - Mast cells use sulfur to stabilize themselves via heparin sulfate
  - Needed for processing for
  - If stopping sulfur foods, ensure you can replace topically

- Gliotoxin – sulfur increases toxicity; need to address

- Oxalates hog sulfur - support body when there is oxalate overload

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How to address mold related Food Intolerances

- Get out of mold exposure
- Reboot nervous system
- Calm GI mast cells and support GI tract
- Detox mold
- Gradually re-introduce new foods

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Your Summit Resource Pages

Mastcell360.com/summit

- Special discounts available only through the summit
- Links to papers, books, products and other resources mentioned in talks at your fingertips
- Additional special downloads, including these slides and our Food Intolerances Shopping Lists

Drkellymccann.com/summit-resources

- Links to Summit related information including Dr. McCann's favorite book resources, scientific articles and blogs.
- Quick access to The Spring Center Clinic and The Spring Center Store, as well as MCAS supplement recommendations.
- Downloadable freebies on environmental toxins and other triggers of MCAS

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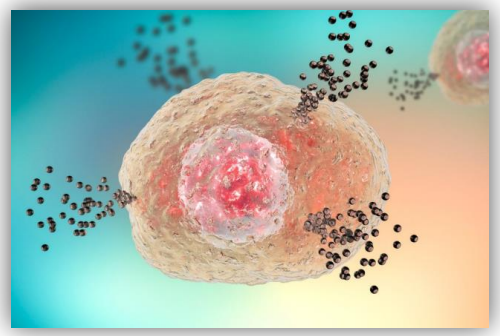

The MC360® 3 Levels of Sensitivities

- **Robust system** – you can take almost any supplements or medications you need at any amount; other than perhaps gluten or dairy, you don't struggle with foods
- **Sensitive system** – tolerating some supplements and medications, but you have to onboard them carefully and some really backfire for you; you may have some food intolerances as well
- **Hypersensitive system** – tolerating less than 5 supplements or medications (or none) and struggling with a lot of food sensitivities

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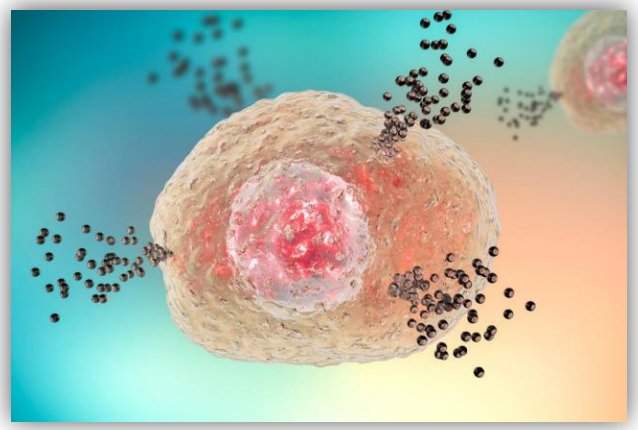

Your Next Step if you have MCAS

Special Summit Discount – 25% off any 1 course
Only through end of the summit!

mastcell360.com/courses/
Coupon Code: 2023summit

If you're not sure which course is right for you:

Hypersensitive	Mast Cell Nervous System Reboot
Sensitive	Top 8 Mast Cell Supporting Supplements Master Class
Robust, Sensitive	MC360® Precision Mold Master Class

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Your Next Step if you have MCAS

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MC360® Practitioner Practicum

6-month training per stage of the MC360® method

1st 6 months Level 1: Stabilization:

- MCAS Foundations
- Diagnostics
- Cell Danger Response
- 5 aspects of healing
- 3 Levels of Sensitivities
- Addressing Hypersensitivities
- Level 1, 2, and Advanced Mast Cell Supports
- Building flare plans
- Working with children
- Neurology and Mast Cells
- Evaluating and addressing nervous system dysregulation
- Addressing Triggers Comprehensively
- Histamines, Oxalates, Salicylates, FODMAPs, Lectins, Thiol Sensitivities
- Role of the Therapeutic Relationship
- Assessments and protocols used in the Mast Cell 360 clinic

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MC360® Practitioner Practicum

Special Summit Discount – 25% off
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Learn more and register: Mastcell360.com/hcp

Coupon Code: 2023HCP

Practitioners only
Must have a medical license or health coach certification with functional medicine training background

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Themes for Each Day

Day 1: Big picture of MCAS and frameworks for healing

Day 2: Cell Danger Response and Order of Operations in MCAS

Day 3: Top MCAS Environmental Toxin Triggers

Day 4: Mold Toxicity and MCAS Special Considerations: Salicylates, Oxalates, and Sulfur Intolerance

Day 5: Infectious Mast Cell Triggers and MCAS Approaches

Day 6: Calming Sensitivities When Nothing is Working

Day 7: Improving your GI system with MCAS; Histamine, Lectins, and FODMAPs

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Your co-hosts

Kelly McCann, MD

Beth O'Hara, FN

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October 20 Mast Cell Diseases Awareness Day

Today is in honor of Mastocytosis and Mast Cell Diseases Awareness Day!

- Started October 20, 2018
- Recognized by 23 organizations from 21 countries

We're honored to put on this free event in honor of everyone experiencing Mast Cell Disorders and all the support teams, practitioners, researchers of those affected by Mast Cell Disorders.

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Summit Day 5

Jill Crista, ND – Light in the Dark for PANS and PANDAS

Nafysa Parpia, ND – Managing Lyme and MCAS: Complex Chronic Illness Made Straightforward!

Scott Forsgren – Scott's 11 Step Process for Healing with MCAS and Chronic Conditions

Christine Schaffner, ND – The ECCO Method for Healing MCAS

Tom Moorcroft, DO and Darin Ingels, ND– Roundtable Discussion: Tick Borne Infections and MCAS

Ruth Kriz, MSN – Mast Cells, Biofilms and Hypercoagulability: The Links Between Infections, Inflammation and Clotting

Sunjya Schweig, MD – Tick-Borne Infection Interplay with Mast Cells: from Immune confusion to Inflammation to Healing

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Special Live Q&A Dates

- **Monday, October 16 at 11am Pacific / 2pm Eastern**
  Beth on Facebook - https://mastcell360.com/Oct16
- **Friday, October 20 at 11am Pacific / 2pm Eastern**
  Kelly on ZOOM– http://alturl.com/go23a
- **Thursday, October 26 at 3:30p Pacific/ 6:30 pm Eastern**
  Kelly and Beth on ZOOM - http://alturl.com/z5sgy
- **Friday, October 27 11am Pacific / 2pm Eastern**
  Kelly on ZOOM - http://alturl.com/c8fz8
- **Saturday, October 28 11 am Pacific / 2 pm Eastern**
  Beth on Facebook - https://mastcell360.com/Oct28

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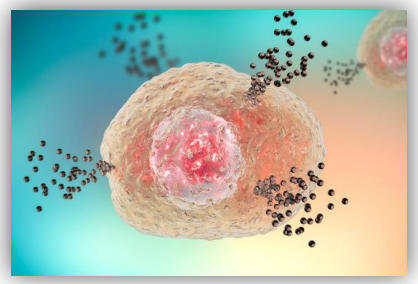

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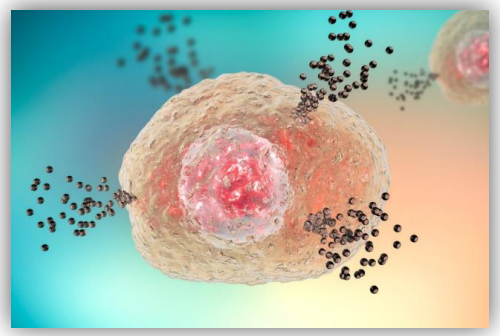

MCAS 101 Topics for Today

Day 5: Infectious Mast Cell Triggers and MCAS Approaches

- History of Vector Borne Infections
- Incidence of Disease
- Tick habitat
- The Big 3 – Symptoms
  - Lyme Borrelia
  - Bartonella
  - Babesia
- Other Infections: Viruses, Fungi, Parasites
- Testing
- Treatment

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History of Lyme Disease

- The autopsy of Otzi, a 5,300 year old mummy found in the Italian Alps in 2010, revealed the presence of Borrelia burgdorferi DNA. Earliest known human with Lyme disease.
- First recorded case in 1883 when German physician, Alfred Buchwald described acrodermatitis chronic atrophicus (ACA).
- In 1909, dermatologist Arvid Afzelius described a ring-like lesion he believed to be from the bite of an Ixodes tick. Erythema migrans (EM) is now known as a primary characteristic of Lyme disease.
- During the 1900s further associations were made between an EM rash and neurological, psychiatric, and arthritic symptoms.
- In 1975, Alan Steere investigated cases of Juvenile Rheumatoid Arthritis in Lyme, Connecticut.
- In 1981, Willi Burgdorfer discovered that Borrelia burgdorferi was the infective agent of Lyme disease.

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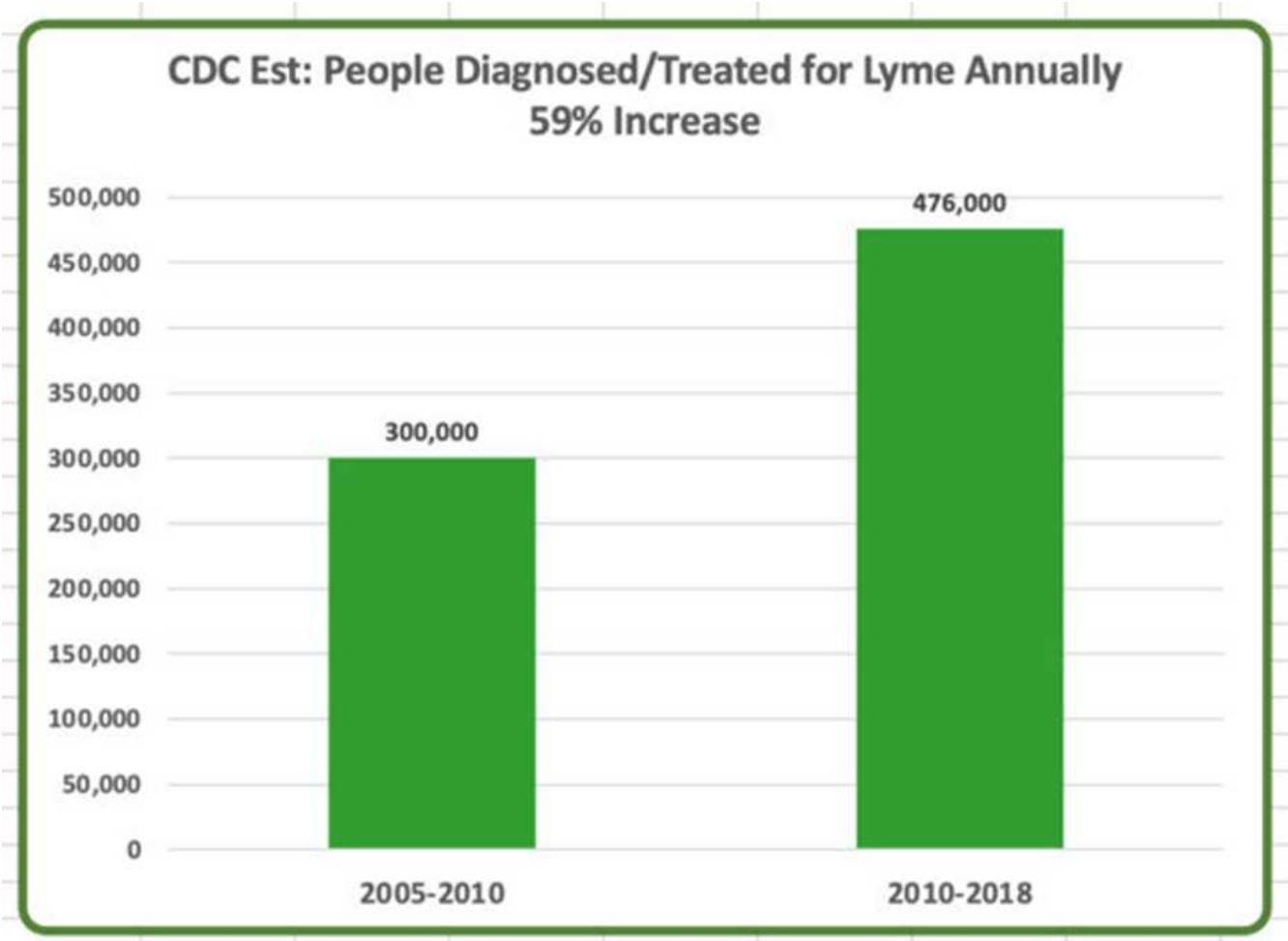
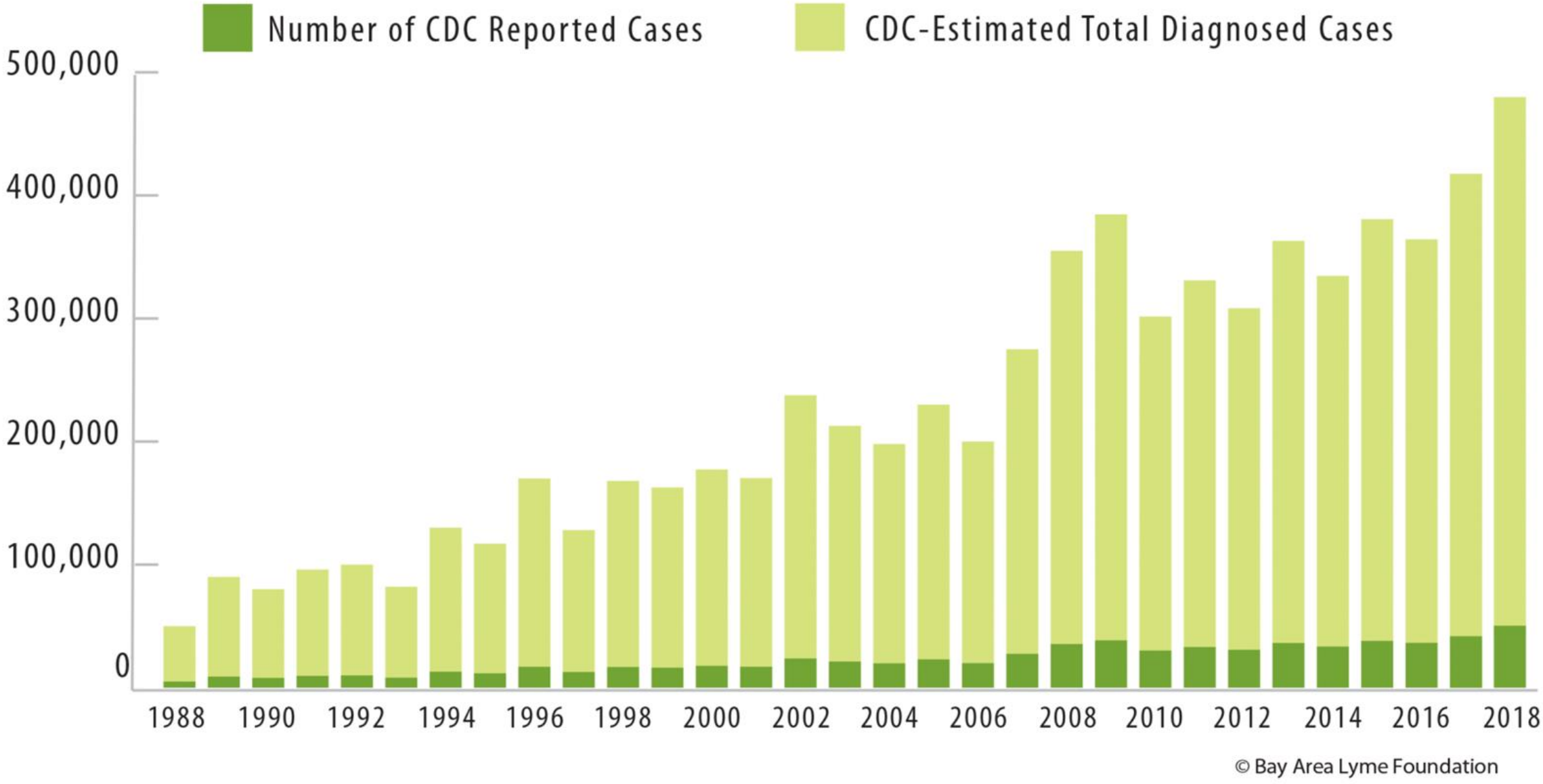
Incidence of Lyme Disease Infections in the USA

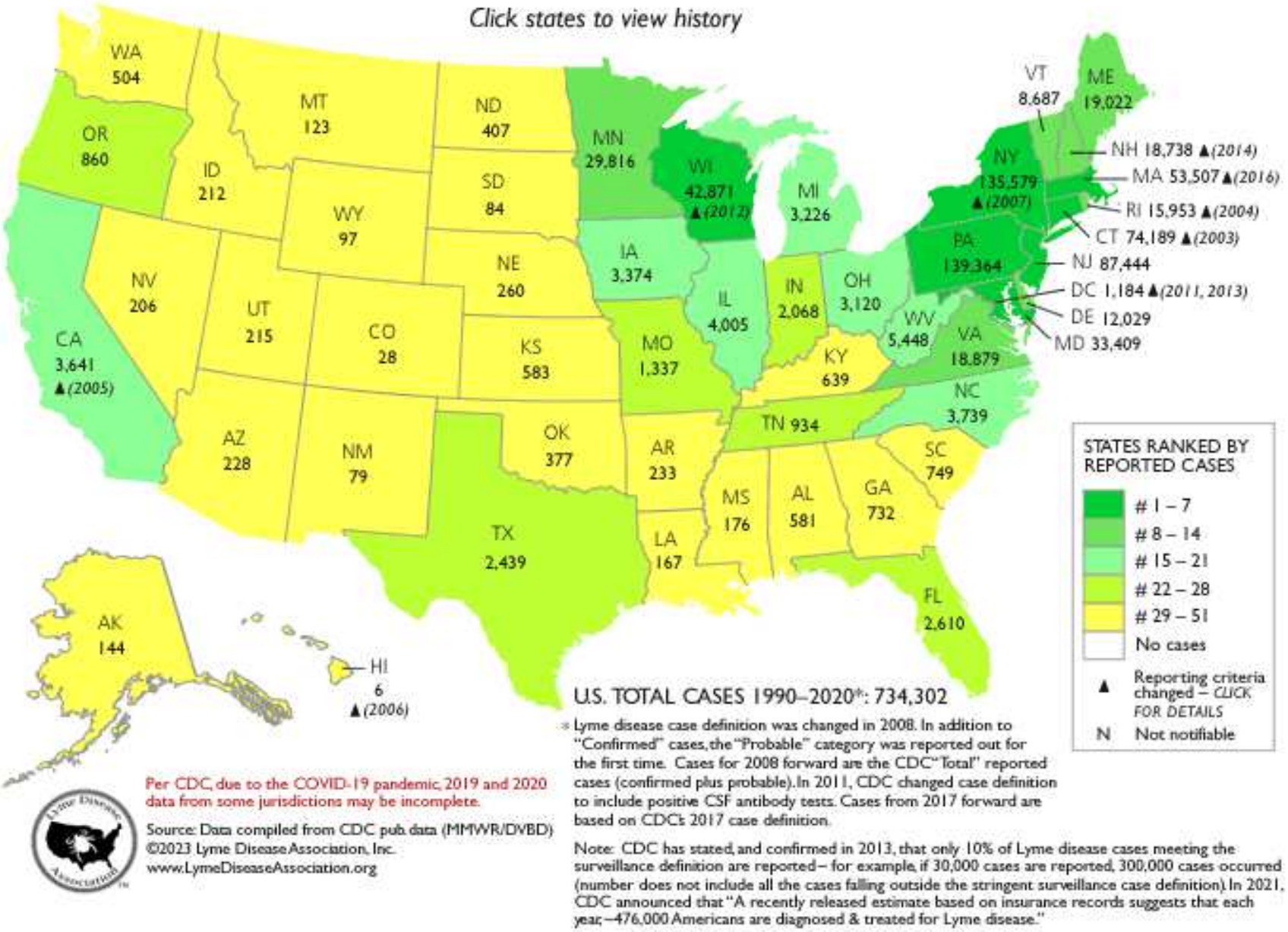
- The CDC estimates that there were about 30,000 cases of Lyme disease reported in the United States in 1982. Almost 500,000 cases now diagnosed ANNUALLY.

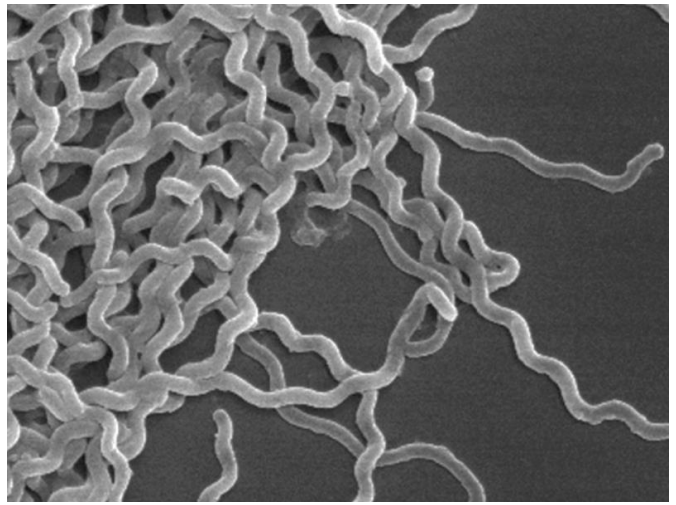


Annual Cases of Lyme Disease in the US



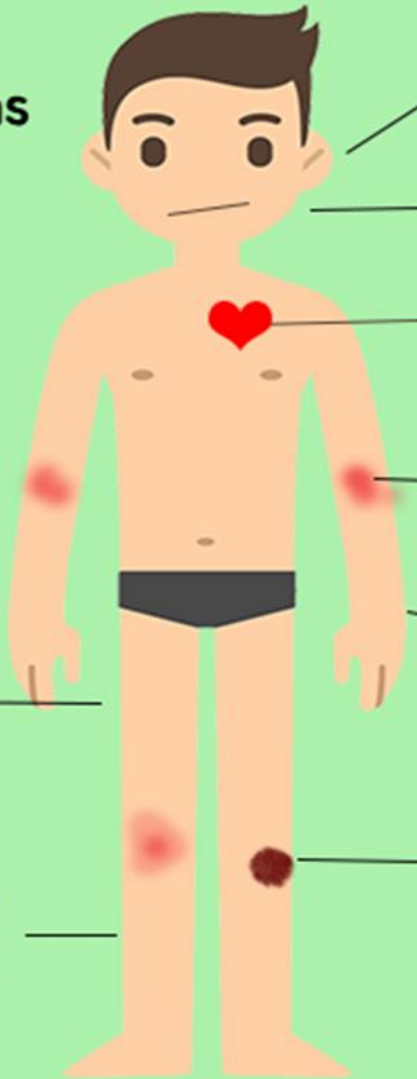
All 50 states





Lyme Disease Symptoms

Flu-Like Symptoms
- Headache
- Fatigue
- Fever
- Chills
- Sore Throat
- Muscle Aches



Hearing Loss

Paralysis of Face

Heart Complications
Rapid or slow heart rate
chest pain

Hot, Swollen, Painful Joints

Abnormal Skin Sensations

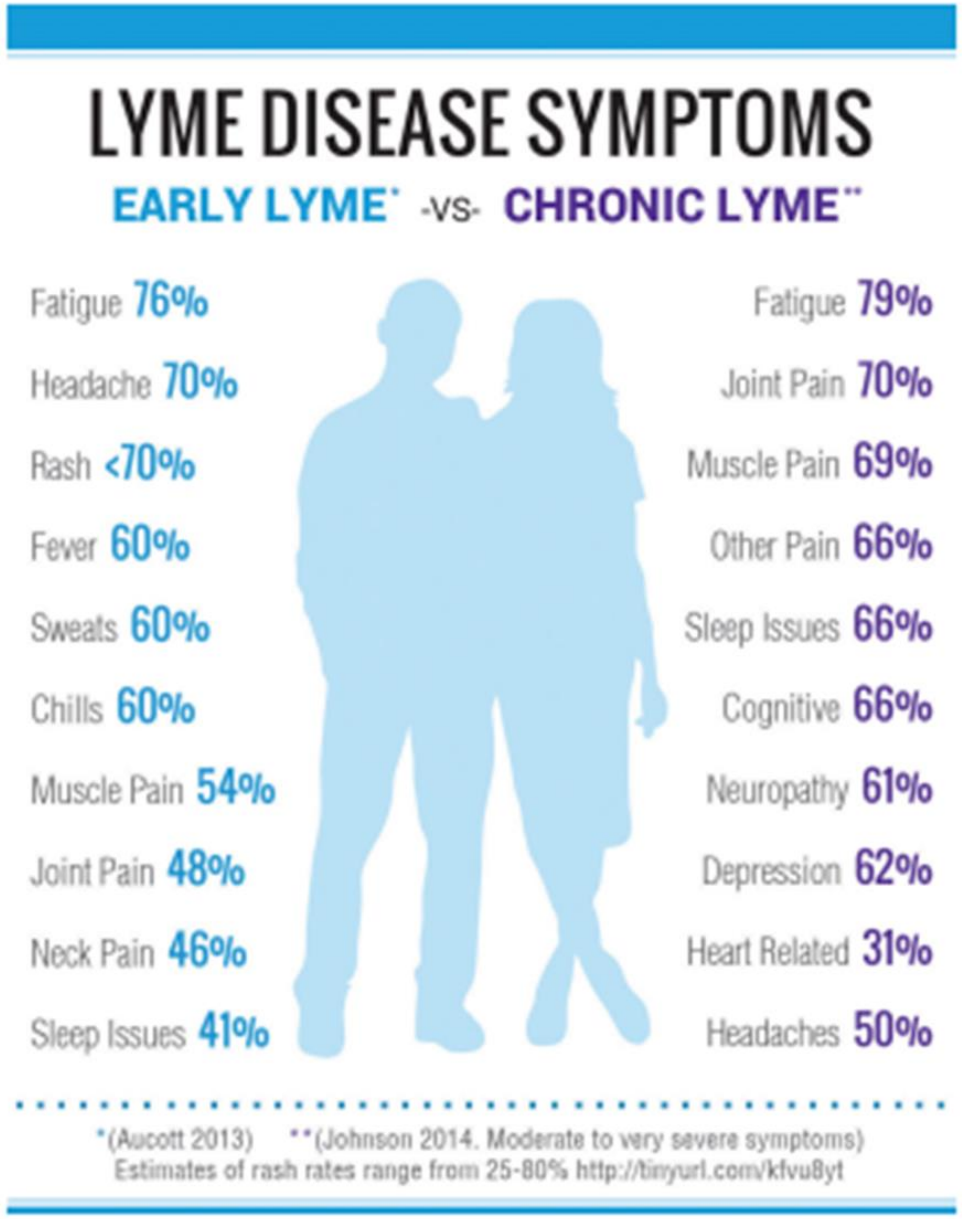
Insomnia

Rash at the Site of the Tick Bite

Psychological Complications
- Depression
- Dementia

Only 25-30% of Lyme patients remember a tick bite.
Only 9% of Lyme patients get a bull's eye rash.

Acute versus Chronic Lyme



- There is a laundry list of symptoms
- Fatigue
- Joint pain or swelling
- Disturbed sleep
- Numbness and tingling
- Burning or stabbing sensations
- Forgetfulness and poor short term memory
- Dysautonomia
- Cardio/respiratory symptoms
- **Migratory symptoms**

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Horowitz Lyme-MSIDS Questionnaire

The Horowitz Lyme-MSIDS Questionnaire is not intended to replace the advice of your own physician or other medical professional. You should consult a medical professional in matters relating to health, and individuals are solely responsible for their own health care decisions regarding the use of this questionnaire. It is intended for informational purposes only and not for self-treatment or diagnosis.

- Kelly's

https://projectlyme.org/msids-questionnaire/

SECTION 1: SYMPTOM FREQUENCY SCORE

0 None 1 Mild 2 Moderate 3 Severe

1. Unexplained fevers, sweats, chills, or flushing	
2. Unexplained weight change; loss or gain	
3. Fatigue, tiredness	
4. Unexplained hair loss	
5. Swollen glands	
6. Sore throat	
7. Testicular or pelvic pain	
8. Unexplained menstrual irregularity	
9. Unexplained breast milk production; breast pain	
10. Irritable bladder or bladder dysfunction	
11. Sexual dysfunction or loss of libido	
12. Upset stomach	
13. Change in bowel function (constipation or diarrhea)	
14. Chest pain or rib soreness	
15. Shortness of breath or cough	
16. Heart palpitations, pulse skips, heart block	
17. History of a heart murmur or valve prolapse	
18. Joint pain or swelling	
19. Stiffness of the neck or back	
20. Muscle pain or cramps	
21. Twitching of the face or other muscles	
22. Headaches	
23. Neck cracks or neck stiffness	

Neuropsychiatric Symptoms of Lyme Disease

Obsessive –compulsive disorders
PANDAS/PANS
Chronic Fatigue Syndrome
Fibromyalgia
Brain fog
Memory issues
Headaches/Migraines
Concentration issues
Dementia
Psychosis/ Paranoia
Eating disorders

Depression
Anxiety/Panic attacks
Mood swings
Irritability
Sleep disorders
Seizures
ADHD-like behaviors
Autism-like behaviors
Schizophrenia
Bipolar disorder
Peripheral neuropathy

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Lyme Disease: the New Great Imitator

Alzheimer's Dementia

Amyotrophic Lateral Sclerosis (ALS)

Anxiety

Attention Deficit Disorder

Autism

Autoimmune diseases

Bell's Palsy

Bipolar

Cardi[illegible]rhythmias

Chronic Fatigue Syndrome

Crohn's Disease

Depression

Encephalitis

Fibromyalgia

Headache

In[illegible]

[illegible]itial Cystitis

Irritable Bowel Disease

Juvenile Arthritis

Lupus

Meningitis

Migraines

M[illegible]clerosis

[illegible]ive

Compulsive Disorder

Parkinson's disease

Raynaud's syndrome

Rheumatoid arthritis

Scleroderma

Thyroid Disease

Ulcerative colitis

Anyone who has these symptoms needs to be evaluated for chronic Lyme disease

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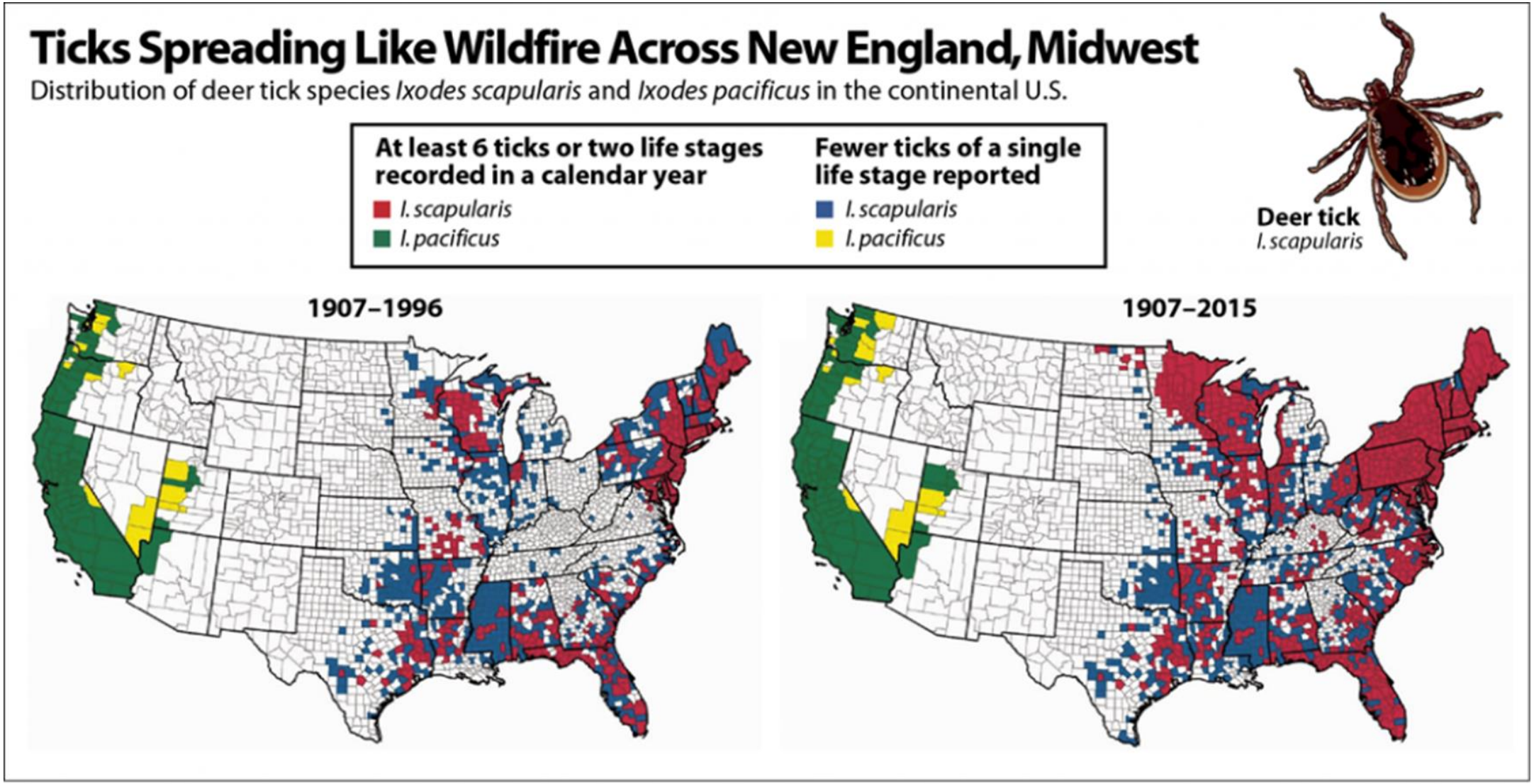
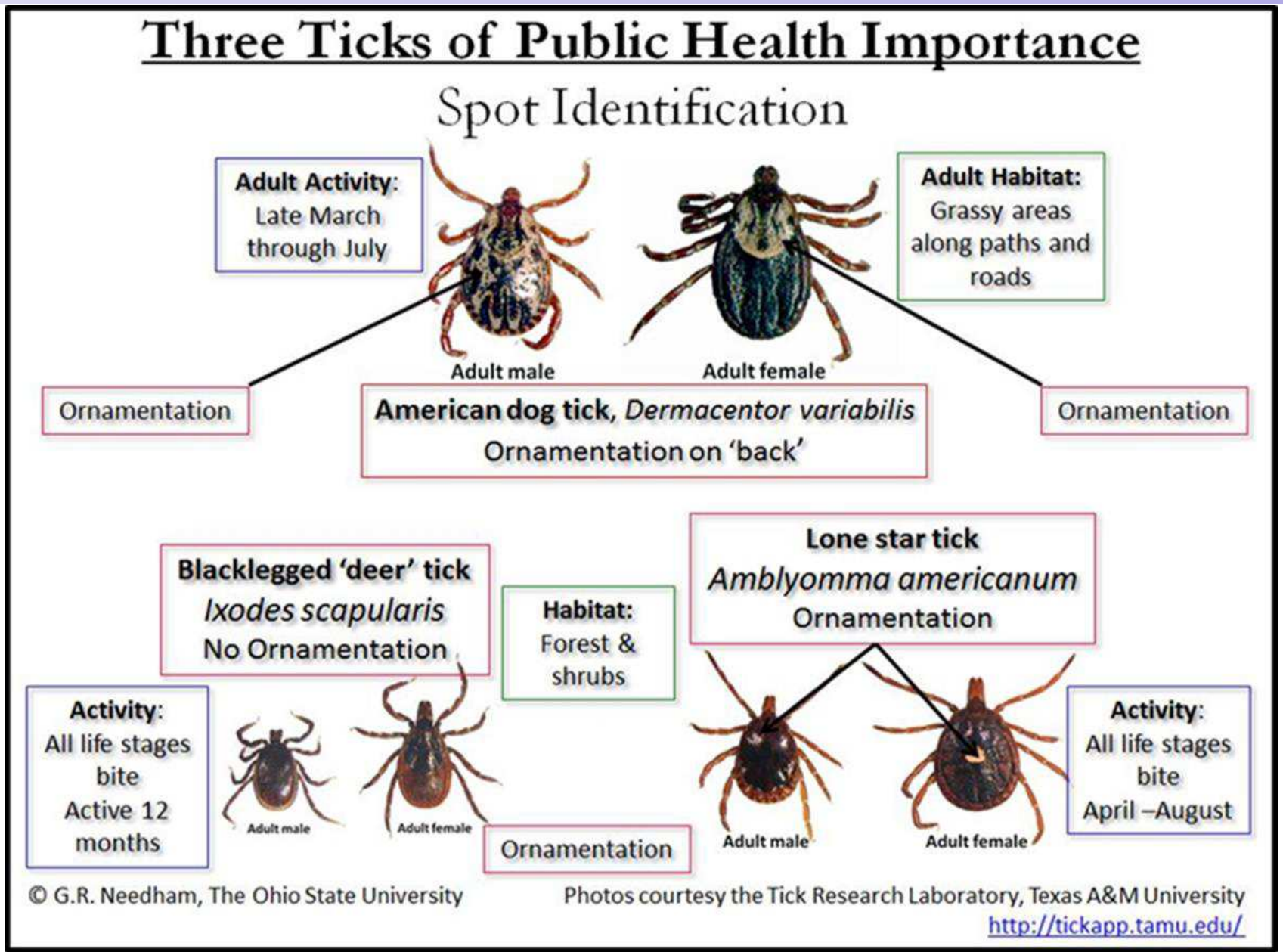
Expansion of Tick Habitat

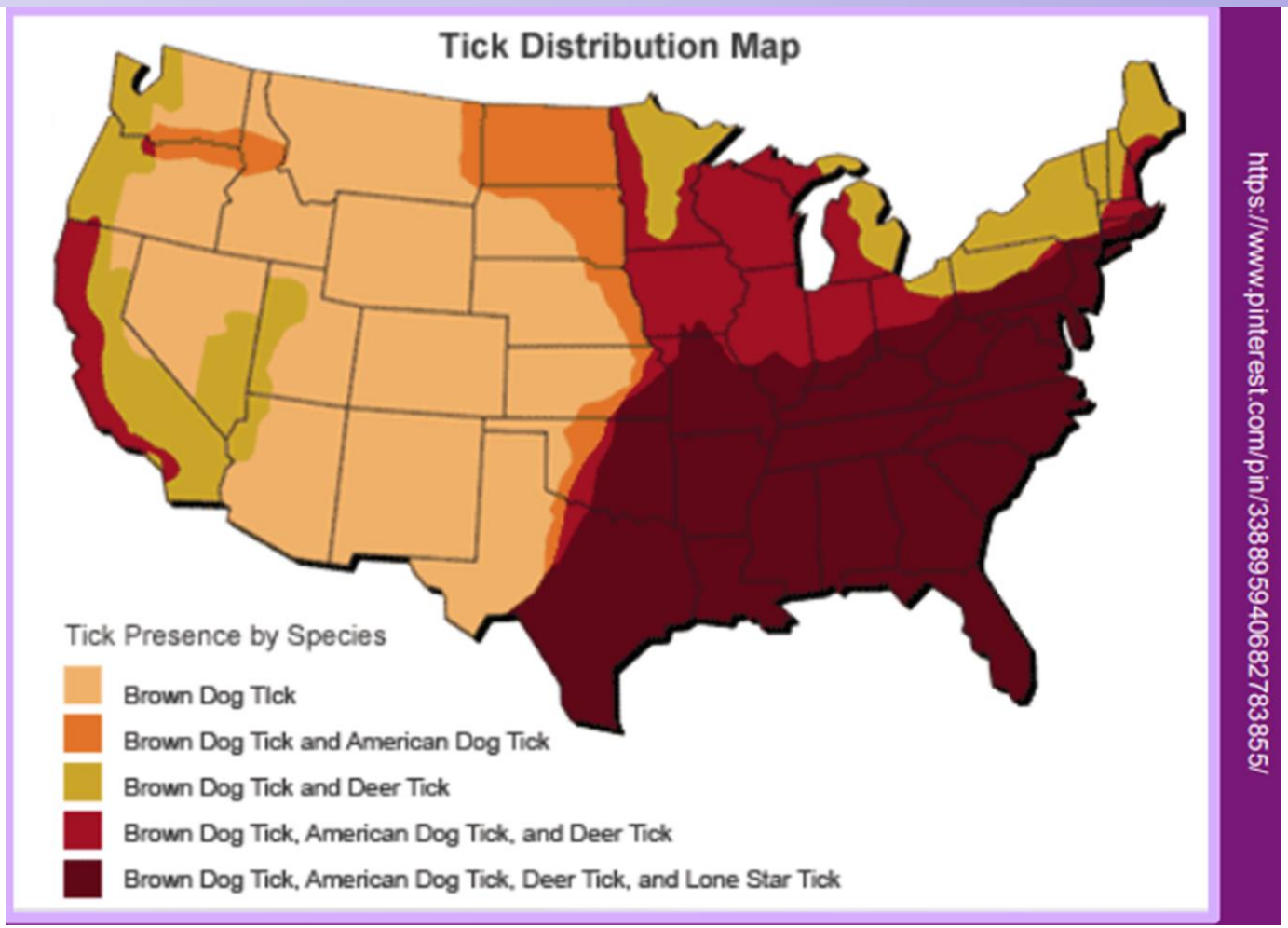


Nature's Dirty Little Needles



Distribution of Ticks throughout the US

Everyone throughout the United States needs to be aware and perform tick checks!



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Babesia – North American Malaria

- Tends to impact the brain and autonomic nervous system
- "Brain Fog" /Cognitive problems
- Drenching sweats
- Temperature dysregulation
- Fever/ Chills
- Fatigue
- Headaches
- Muscle aches
- Chest pain, Palpitations
- POTS postural orthostatic tachycardic syndrome
- Loss of Appetite
- Air hunger/ Shortness of breath
- Cough
- Emotional Upheaval, Depression, Anxiety and Fear
- Insomnia
- Constipation or Diarrhea due to Dysautonomia
- Elevation of liver enzymes
- Hemolytic anemia

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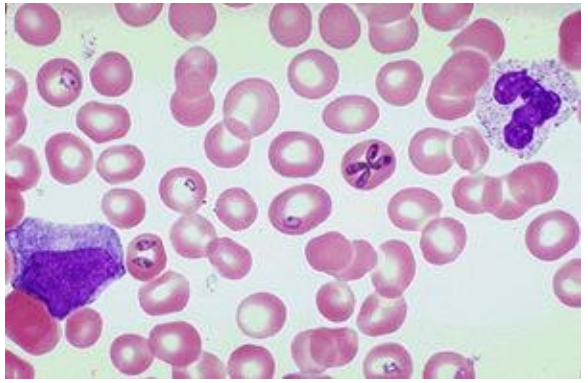
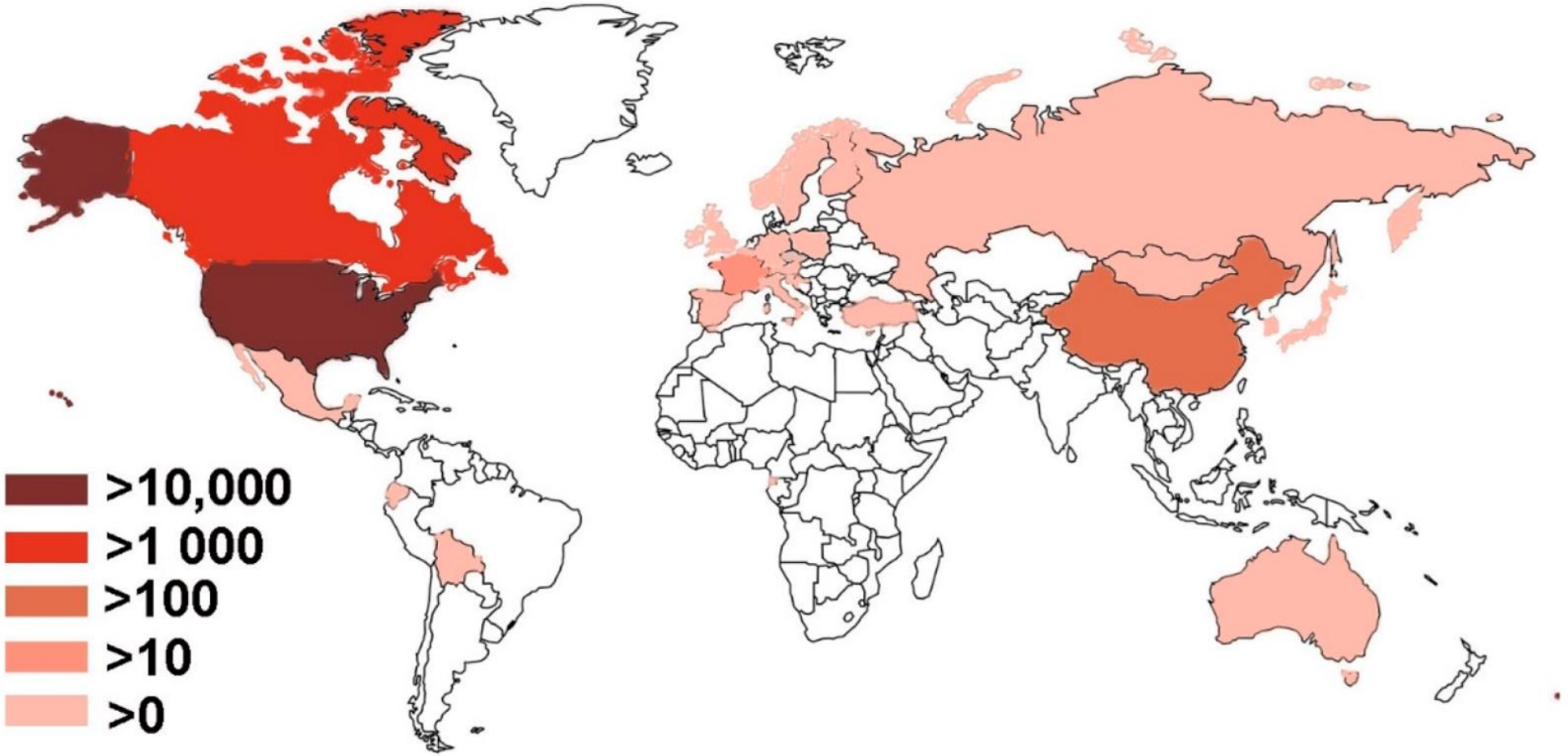


World-wide distribution of Babesia



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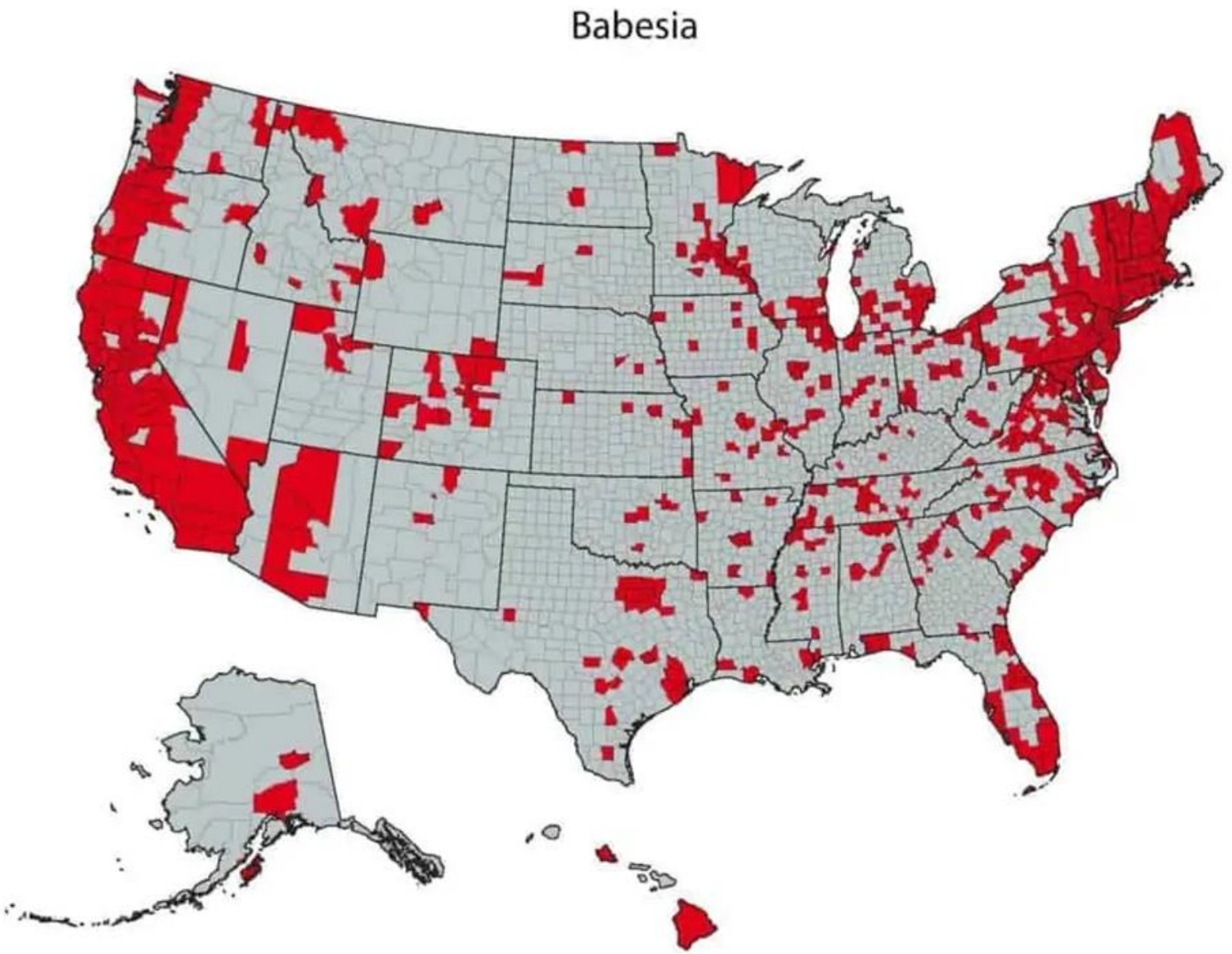
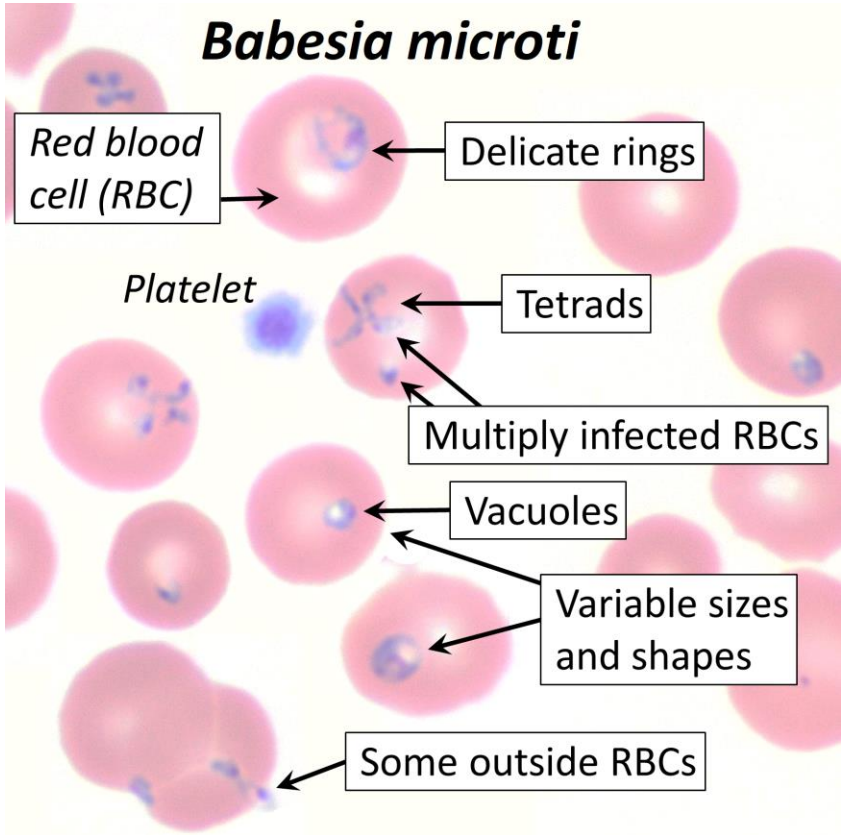
Babesia in the USA





Bartonella – "cat scratch fever"

Early Signs: within 5-14 days

Fever, Fatigue, Headache, poor appetite and Swollen glands.

Late or Chronic Disease:

Fatigue
Chronic pain
Pelvic pain/ interstitial cystitis
Pain on the soles of the feet
Chest pain/Palpitations
Endocarditis/myocarditis
Headaches
Muscle and Joint pain
Abnormal liver enzymes
Enlarged liver and spleen
Neurological Symptoms

Rashes
Recurrent Fevers
Lymphadenopathy/ lymph node swelling
Stretch marks/Striae/Tracks
Psychiatric manifestations
Anxiety/ Panic attacks
OCD behaviors
Light sensitivity, Eye pains

Often triggers Mast Cell Activation Syndrome

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Bartonella – Super Stealth Infection

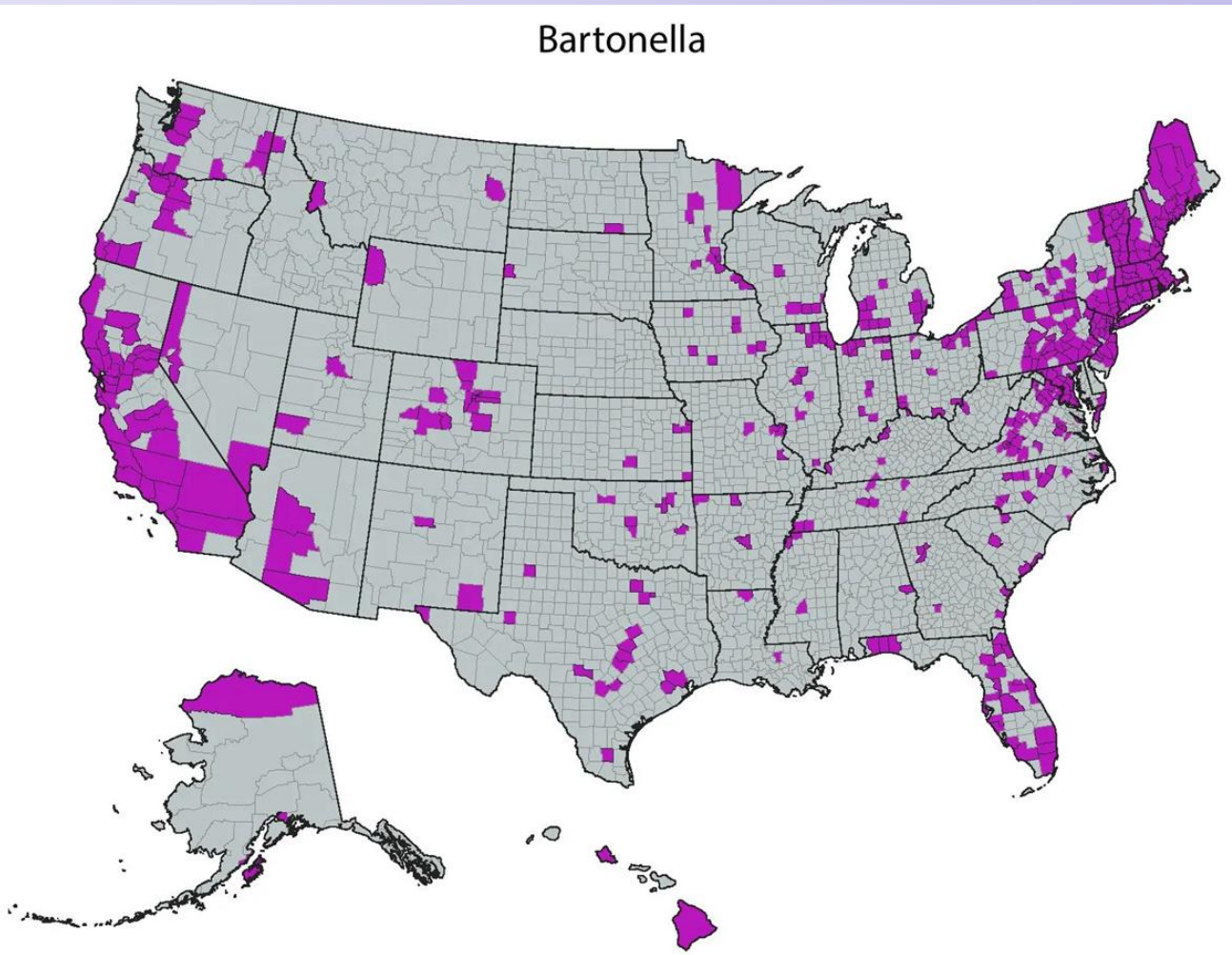
Bartonella	Primary reservoir	Vector	Accidental host(s)and [human disease]
Bartonella alsatica	(Rabbit *Oryctolagus cuniculus*)	(Rabbit flea? *Spilopsyllus cuniculi*)	Human (endocarditis)
Bartonella bacilliformis	Human	(Sandfly *Lutzomia verrucarum*)	None [Carrion's disease, Oroya fever, verruga peruna]
Bartonella clarridgeiae	(Cat *Felis catus*)	(Cat flea *Ctenocephalides felis*)	Human, dog [cat scratch disease/ endocarditis]
Bartonella elizabethae	(Rat *Rattus norvegicus*)	(Oriental rat flea *Xenopsylla cheopis*)	Human, dog [endocarditis, neuroretinitis]
Bartonella grahamii	(Wild mice *agrestris, Apodemus Clethrionomys glareolus, Microtus flavicollis*)	Rodent fleas	Human [neuroretinitis]
Bartonella henselae	(Cat *Felis catus*)	(Cat flea *Ctenocephalides felis*)	Human, dog, horse, marine animals [Cat scratch disease, bacillary angiomatosis, endocarditis, neuroretinitis, bacteraemia
Bartonella koehlerae	Cat	Cat flea	Human, dog [endocarditis]
Bartonella melophagi	(Sheep *Ovis aries*)	(Sheep ked *Melophagus ovinus*)	Human [pericarditis, chronic fatigue]
Bartonella quintana	Human	(Body louse *Pediculus humanis*)	Cat, dog [endocarditis, trench fever, bacillary angiomatosis]
Bartonella rochalimae	Canids	(Fleas? *Pulex irritans, Pulex simulans*)	Human, dog [bacteraemia, fever]
Bartonella tamiae	(Rat?) Unknown	Mites? Ticks?	Humans [bacteraemia, fever]
Bartonella vinsonii arupensis	(White-footed mouse *Peromyscus leucopus*)	(Fleas? ticks?) Unknown	Human [bacteraemia, fever, endocarditis]
Bartonella vinsonii berkhoffii	(Coyote *Canis latrans*) Dog (*Canis familiaris*)	(Ticks?) Unknown	Human, cat [endocarditis]
Bartonella washoensis	(Californian ground squirrel *Spermophilus beecheyii*)	(Fleas *Oropsylla montana*)	Human, dog [myocarditis, endocarditis]

Adapted from Chomel BB, Kasten RW. 2010. Bartonellosis, an increasingly recognized zoonosis, J Appl Microbiol 109 : 743–750; and Kaiser PO, Riess T, O'Rourke F, Linke D, Kempf VA. 2011. *Bartonella* spp.: Throwing light on uncommon human infections. Int J Med Microbiol 301 : 7–15.

Discovered in 1990 in San Francisco in the homeless or HIV infected population, at that time researchers had NO idea Bartonella existed in any mammals in the USA.

tion

Bartonella Distribution in the USA



- Has a worldwide distribution.
- In a study of Ixodes pacificus, Western blacklegged ticks collected in California, 19.2% were found to be carrying Bartonella. Five different species of Bartonella were detected.
- Despite this the CDC maintains Bartonella is not transmitted by ticks.
- Pubmed search for Bartonella and ticks reveals 387 articles from all over the globe. Norway, Malaysia, Thailand, China, Taiwan, Jordan, Spain, Algeria, Palestine, etc.

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Lyme Co-infections and Associated Infections

- **Babesia** (B.microti, B. duncani)
- **Bartonella** (B. henselae, B. quintana, B. bacilliformis)
- Anaplasmosis/Ehrlichiosis
- Relapsing Fever Borrelia (Borrelia miyamotoi, B. hermsii)
- Rickettsia (Rocky Mountain Spotted Fever, R. typhi)
- Coxiella burnetti (Q fever)
- Chlamydia infections
- Mycoplasma infections
- Francisella tularensis (Tularemia)
- Brucella

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Lyme Co-infections and Associated Infections

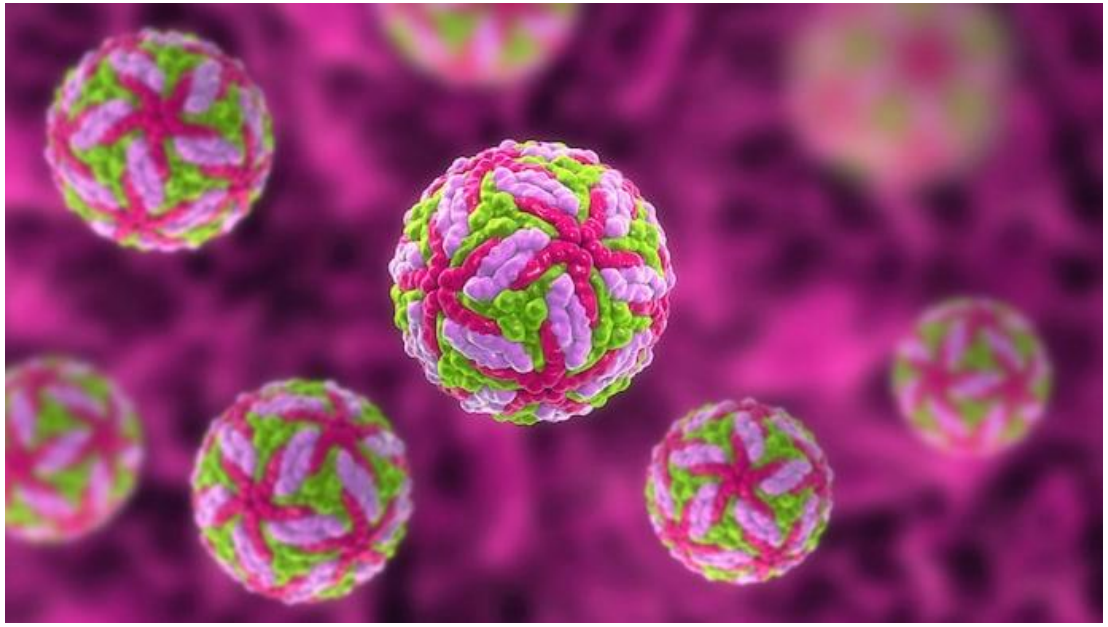
- Tick paralysis
- Colorado Tick fever
- STARI (Southern Tick Associated Rash Illness)

Viral infections

- Heartland Virus
- Powassan Encephalitis
- West Nile
- Human Herpes Virus-6 (HHV-6)
- Epstein Barr Virus (EBV)
- Cytomegalovirus (CMV)

Fungal Infections

Parasitic infections



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Testing for Vector Borne Infections

Lyme disease is a clinical diagnosis.

CDC has strict criteria that do NOT identify everyone who might have an infection.

The recommended 2 tier test is insensitive and may miss over 50% of infections.

Antibody testing for other infections is also complicated.

For numerous species of Borrelia/ Bartonella/ Babesia are testable.

There are several worthwhile tests available.

Work with a knowledgeable practitioner.

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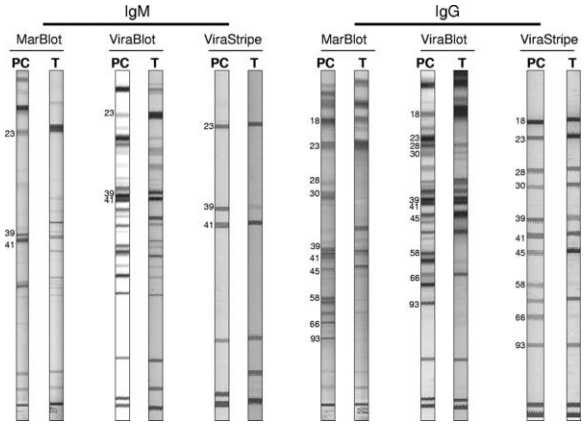

Infection Treatments

Must prepare for trea®ent!

Calm down Mast Cells.

Reduce nervous system and limbic system reactivity.

Ensure a safe environment, free from mold and as many environmental chemicals as possible.

Prepare for Detoxification (Pre-Tox)

Engage in gentle detox strategies

Layer in trea®ents SLOWLY

Be sure to address Biofilms

Closely manage Herxheimer reactions

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Infection Treatments

Homeopathic Infection Options

Low Dose Immunotherapy (LDI) developed by Ty Vincent

Frequency trea®ents

Herbal anti-microbials

Antibiotics

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Next Step if You have MCAS

- For an individualized, Functional Medicine approach to your health working with Dr Kelly and her medical team. Visit:

https://thespringcenter.com/contact/

- For a Deep Dive to empower yourself with knowledge about your exposures. Check out Dr Kelly's in-depth Masterclass:

https://drkellymccann.com/mcas-how-to-regain-control/

- For resources, articles, and supplements visit:

https://drkellymccann.com

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- Links to Summit related information including Dr. McCann's favorite book resources, scientific articles and blogs.
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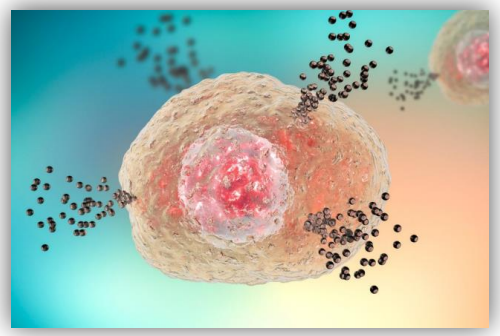

Themes for Each Day

Day 1: Big picture of MCAS and frameworks for healing

Day 2: Cell Danger Response and Order of Operations in MCAS

Day 3: Top MCAS Environmental Toxin Triggers

Day 4: Mold Toxicity and MCAS Special Considerations: Salicylates, Oxalates, and Sulfur Intolerance

Day 5: Infectious Mast Cell Triggers and MCAS Approaches

Day 6: Calming Sensitivities When Nothing is Working

Day 7: Improving your GI system with MCAS; Histamine, Lectins, and FODMAPs

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Your co-hosts

Beth O'Hara, FN

Kelly McCann, MD

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Summit Day 6

Rob Downey, MD – How Can Inner Peace Reverse MCAS?

Jacob Teitelbaum, MD – SHINE Protocol for MCAS

Dayan Goodenowe, PhD – Resolving Neuroinflammation in MCAS

Cathleen King, DPT – Limbic System, MCS & MCAS

Christina Boyd – Using Brain Gym® for Whole Body/Whole Brain Integration and Healing

Andrea Isaacs – Relationship Mastery in MCAS: The 5 Cs for Easing Difficult Conversations

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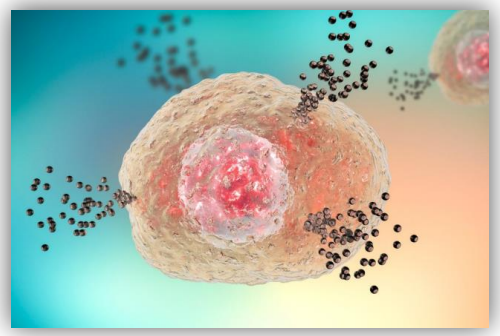

Special Live Q&A Dates

- **Monday, October 16 at 11am Pacific / 2pm Eastern**
  Beth on Facebook - https://mastcell360.com/Oct16
- **Friday, October 20 at 11am Pacific / 2pm Eastern**
  Kelly on ZOOM– http://alturl.com/go23a
- **Thursday, October 26 at 3:30p Pacific/ 6:30 pm Eastern**
  Kelly and Beth on ZOOM - http://alturl.com/z5sgy
- **Friday, October 27 11am Pacific / 2pm Eastern**
  Kelly on ZOOM - http://alturl.com/c8fz8
- **Saturday, October 28 11 am Pacific / 2 pm Eastern**
  Beth on Facebook - https://mastcell360.com/Oct28

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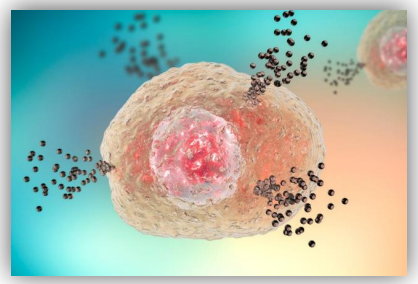

MCAS 101 Topics for Today

- Mast Cells and the Nervous System
- How to know if you have Nervous System Dysregulation
- The biggest triggers of Nervous System Dysregulation
- Targeting the 3 key areas of the Nervous System for MCAS

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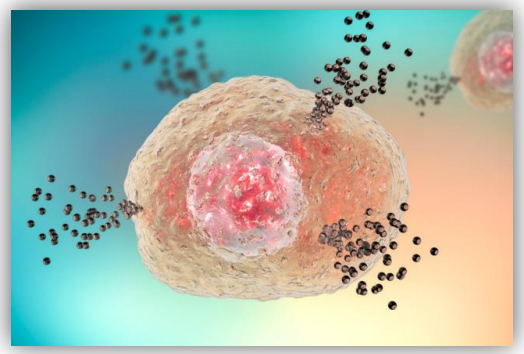

The Mast Cell - Nervous System Links

Mast Cells are found in:

- Limbic System areas of the brain
- At nerve endings
- Along the nerve sheaths

Mast Cells affect behavior in:

- Avoiding toxins
- Avoiding allergens
- Responses to stress

Mast Cells are involved in:

- Anxiety
- Depression
- Pain
- Migraines

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The Mast Cell - Nervous System Links

Psychoneuroendicrinoimmunology

Psycho = mind state
Neuro = nervous system
Endocrino = hormone system
Immuno = immune system

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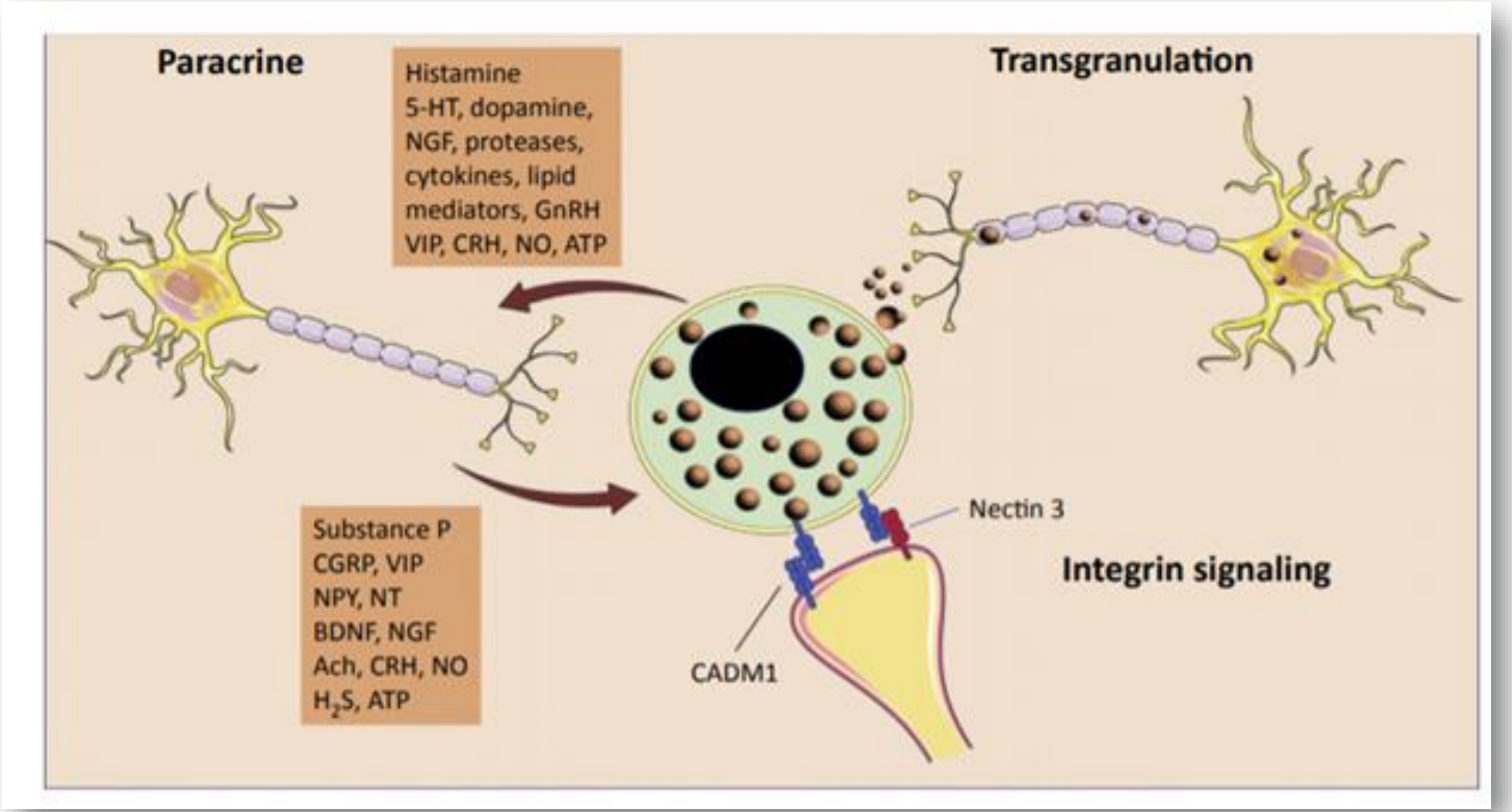
The Mast Cell - Nervous System Links



Forsythe P. (2019). Mast Cells in Neuroimmune Interactions. *Trends in neurosciences*, *42*(1), 43–55. https://doi.org/10.1016/j.tins.2018.09.006

Rebooting the Nervous System for Reversing MCAS

3 Key Areas

- Limbic
- Vagal
- Structural

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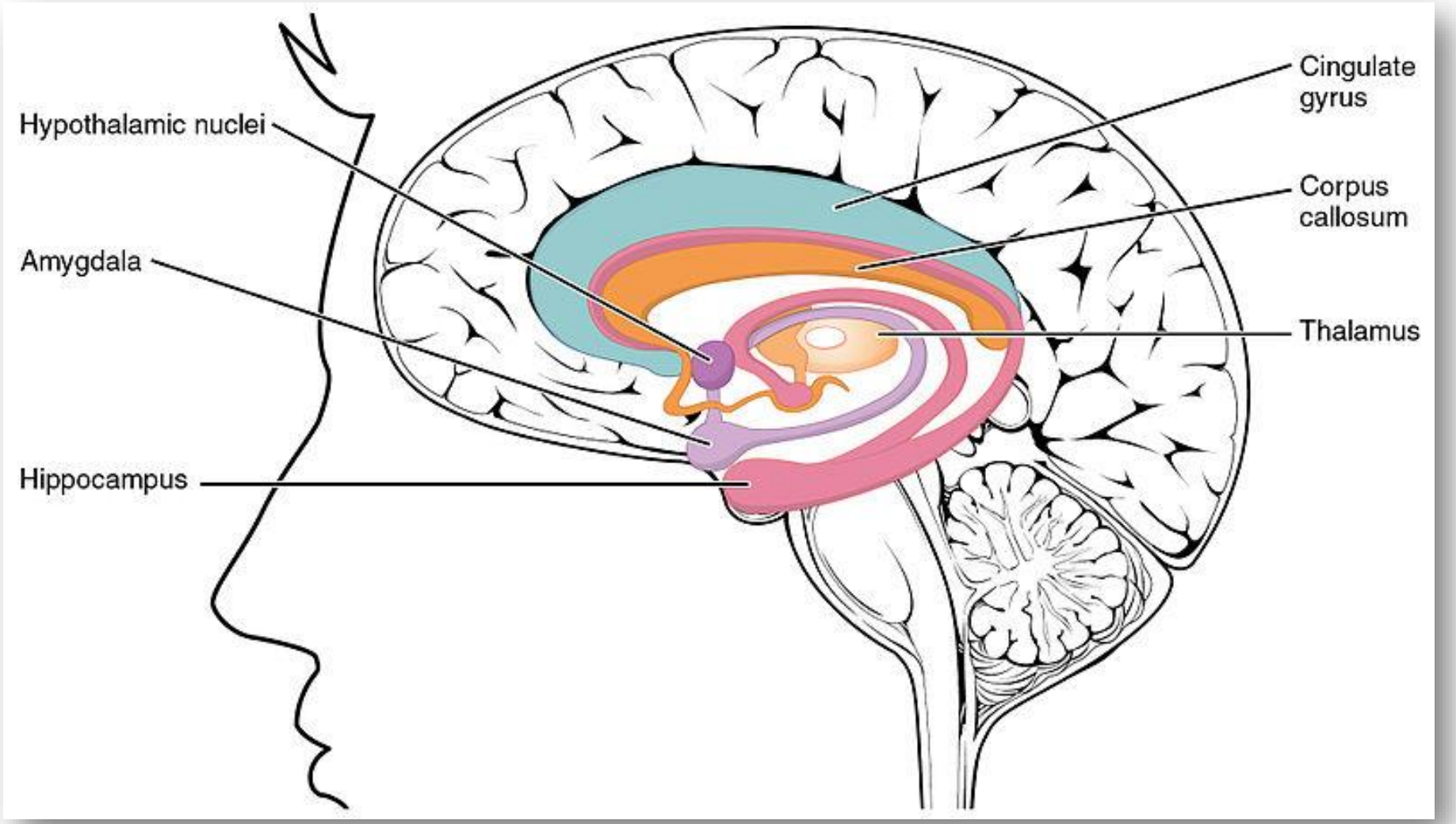
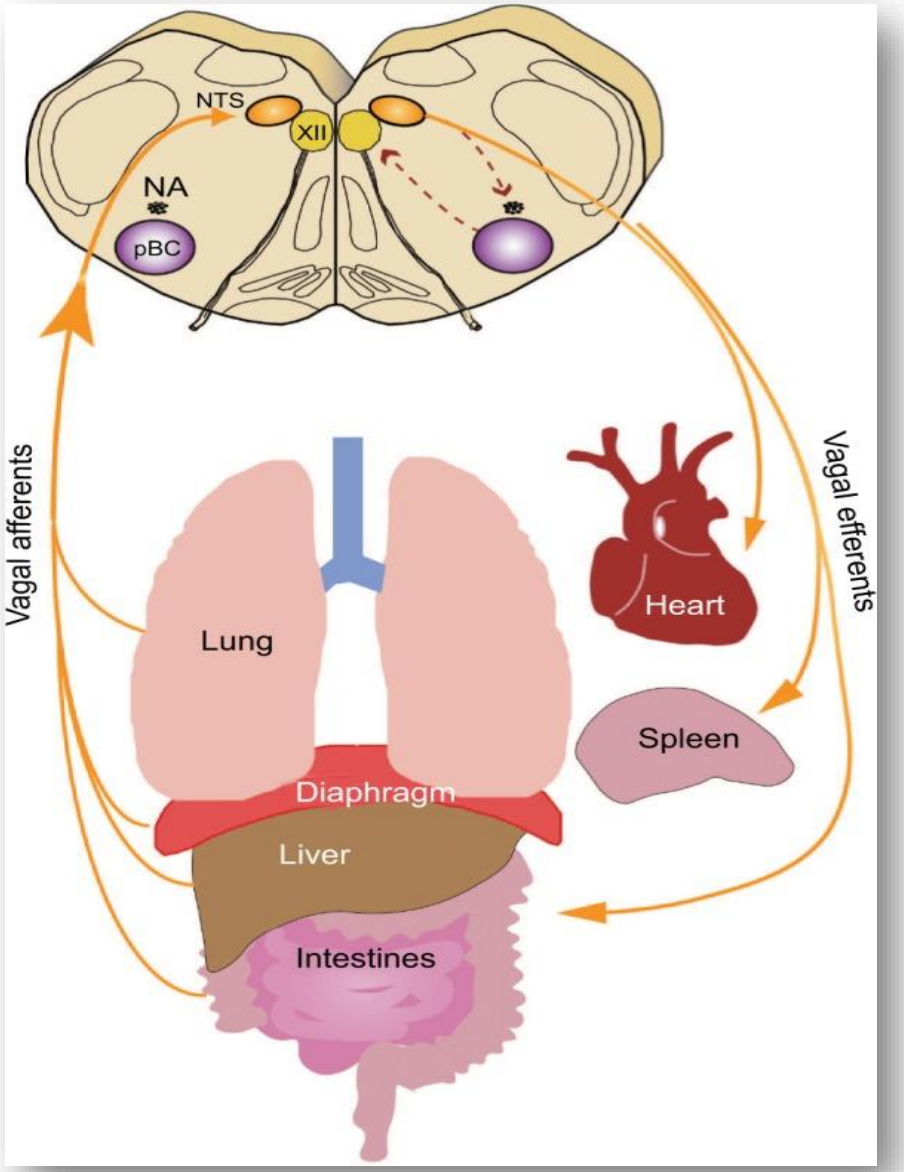
Limbic System



https://commons.wikimedia.org/wiki/File:1511_The_Limbic_Lobe.jpg

The Vagal Nerves



Johnson, R. L., & Wilson, C. G. (2018). A review of vagus nerve stimulation as a therapeutic intervention. *Journal of inflammation research*, *11*, 203–213. https://doi.org/10.2147/JIR.S163248

Common Triggers of Haywire Mast Cells

- Mold Toxicity
- Lyme & Co-infections
- Traumas
    - i. Early childhood
    - ii. Abuse
    - iii. Witnessing abuse
    - iv. Medical traumas
    - v. Challenging surgeries

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Common Triggers of Haywire Mast Cells

Too many Life Changes at once - moving, new job, addition to family, etc.

Chronic Emotional Stressors (difficult relationships at home, with family/friends, at work, being bullied, financial stresses, quarantines, politics)

Chronic high EMF exposures (i.e. working near a WIFI router)

Chronic chemical exposures (working in a hospital, exposures from nearby factories, off-gassing of new furniture, mattresses, flooring, paint, etc.)

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Signs and Symptoms of NS Dysregulation – 1 point

- Startling easily
- Weak gag reflex
- Overly strong gag reflex
- Trouble sleeping
- Waking up tired
- Feeling wired and tired
- Feeling wired after too much conversation
- Easily stressed with changes
- Anxiety or depression
- Loss of intestinal motility (chronic constipation or diarrhea)
- High or low blood pressure

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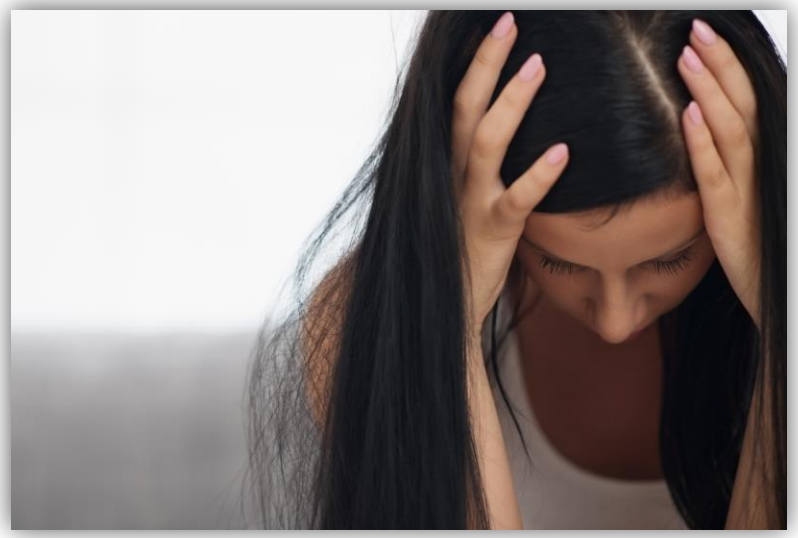

Signs and Symptoms of NS Dysregulation – 1 point

- Asymmetry or dysregulation of soft palate movement
- Light/sound Sensitivities
- Supplement or medication reactions
- History of chronic Lyme, Bartonella, Babesia, etc.
- Chemical sensitivities (paint, gasoline, new clothing, new furniture, etc.)
- Constant food reactions
- Mast Cell Activation Syndrome
- EMF sensitivities
- Mold sensitivities
- Sensitivity to perfume or cologne
- Autoimmunity

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The Mast Cell - Nervous System Links – 5 points

Nervous System Dysregulation is involved in:

- POTS (Postural Orthostatic Tachycardia Syndrome)
- Autoimmune Disorders
- Problems with Gut Motility
- Neuropathy
- Tinnitus
- Complex Regional Pain Syndrome
- EDS (Ehlers–Danlos Syndrome)
- Fibromyalgia
- Chronic Fatigue
- IBS (Irritable Bowel Syndrome)

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How Haywire are your Mast Cells?

4 or less points: Likely Mildly Haywire Mast Cells. Your mast cells are likely Mildly Haywire. Consider light Mast Cell Nervous System Rebooting

5-10 points: Likely Moderately Haywire Mast Cells. Your mast cells are likely Moderately Haywire. Seriously consider Mast Cell Nervous System Rebooting

11-14 points: Likely Strongly Haywire Mast Cells. Your Mast Cells are likely Strongly Haywire and are really blocking your healing. Definitely need Mast Cell Nervous System Rebooting

15-20 points: Likely Severely Haywire Mast Cells.
Your Mast Cells are likely Severely Haywire and are majorly blocking your healing. Need major Mast Cell Nervous System Rebooting to recover. But you CAN get unstuck and get on with your healing!

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Rewiring the NS Dysregulation

Best outcomes when working on both systems in targeted ways:

- Limbic System Regulation
- Vagal Nerve Signaling
- Structural issues impacting nervous system

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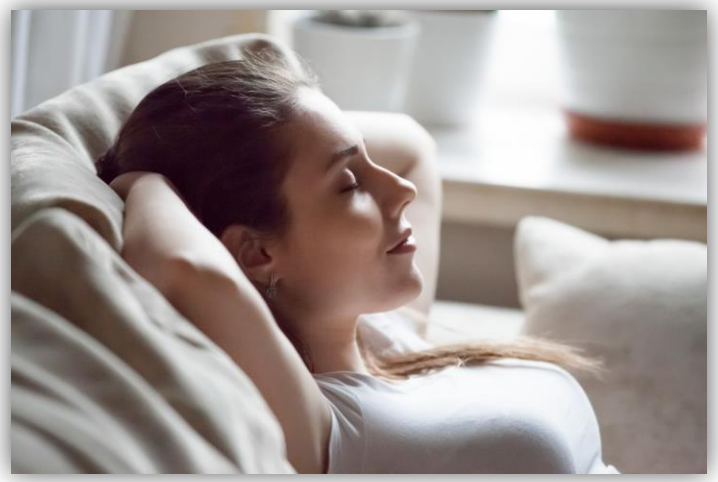
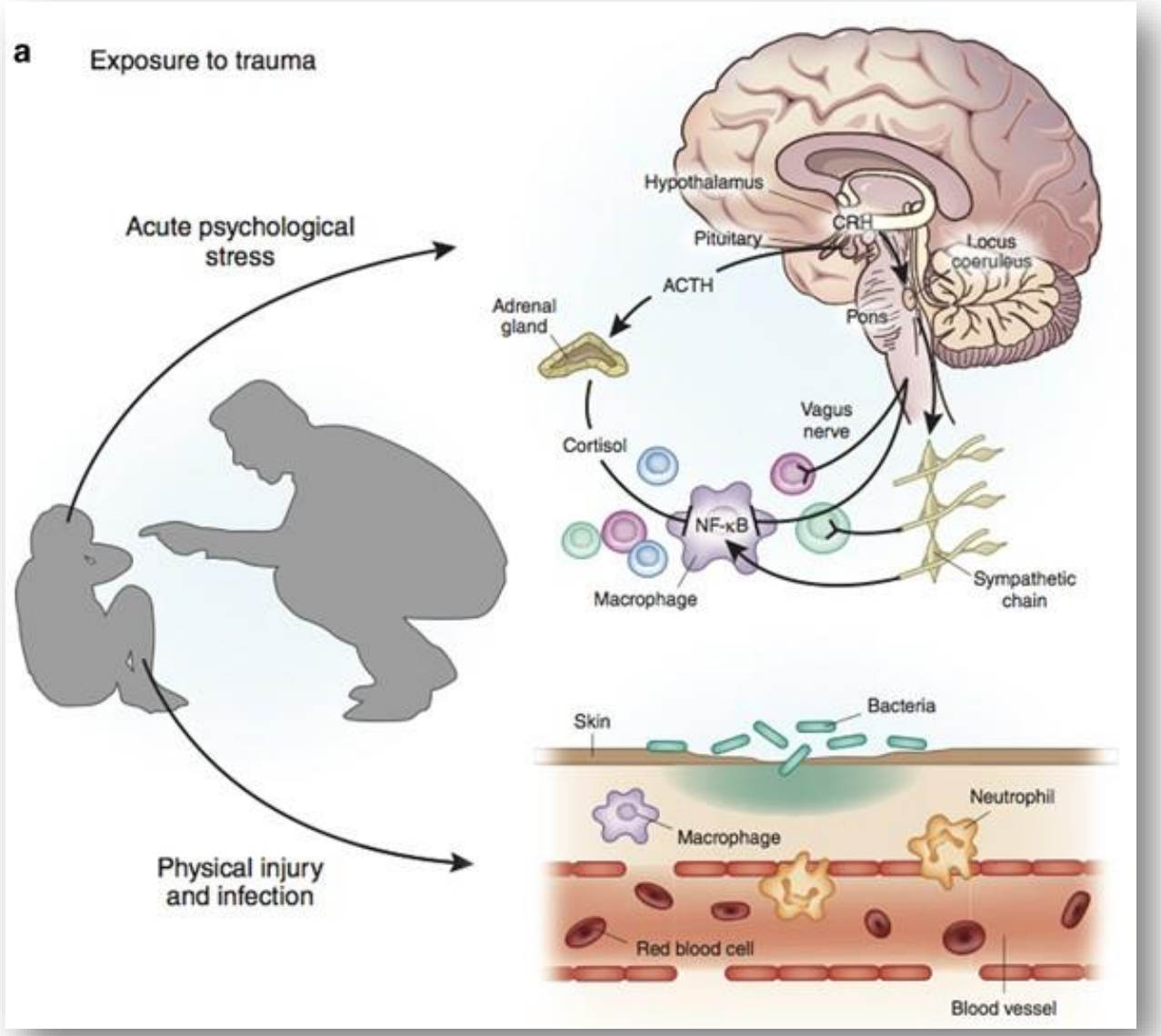


Psychoneuroimmunology of Early-Life Stress



Danese, A., & J Lewis, S. (2017). Psychoneuroimmunology of Early-Life Stress: The Hidden Wounds of Childhood Trauma?. Neuropsychopharmacology : official publication of the American College of Neuropsychopharmacology, 42(1), 99–114. https://doi.org/10.1038/npp.2016.198

Stress Factors to Assess:

- Divorce
- New significant relationship
- New additions to your family
- Death of a loved one
- Witnessing violence
- Surgery
- Overworking
- Moving
- Retirement
- Financial concerns
- Toxic relationships
- Losing a job
- Starting a new job
- New relationship
- Feeling isolated
- Worries about political changes
- Worries about safety

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Trauma to Assess:

- Experiencing or witnessing sexual, physical, emotional, or mental abuse (now or as a child)
- Childhood neglect
- Sudden loss of a loved one
- Witnessing a traumatic event
- Bullying, harassment, or abuse at school or work
- Military Trauma
- Having a family member with a serious illness or injury
- Significant childhood medical issues (like surgeries)

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The MC360® 3 Levels of Sensitivities

- **Robust system** – you can take almost any supplements or medications you need at any amount; other than perhaps gluten or dairy, you don't struggle with foods
- **Sensitive system** – tolerating some supplements and medications, but you have to onboard them carefully and some really backfire for you; you may have some food intolerances as well
- **Hypersensitive system** – tolerating less than 5 supplements or medications (or none) and struggling with a lot of food sensitivities

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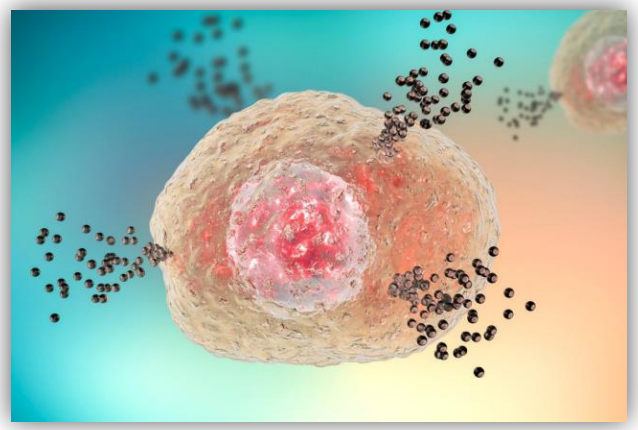

Your Next Step if you have MCAS

Special Summit Discount – 25% off any 1 course
Only through end of the summit!

mastcell360.com/courses/
Coupon Code: 2023summit

If you're not sure which course is right for you:

Hypersensitive	Mast Cell Nervous System Reboot
Sensitive	Top 8 Mast Cell Supporting Supplements Master Class
Robust	MC360® Precision Mold Master Class

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MC360® Practitioner Practicum

6-month training per stage of the MC360® method

1st 6 months Level 1: Stabilization:

- MCAS Foundations
- Diagnostics
- Cell Danger Response
- 5 aspects of healing
- 3 Levels of Sensitivities
- Addressing Hypersensitivities
- Level 1, 2, and Advanced Mast Cell Supports
- Building flare plans
- Working with children
- Neurology and Mast Cells
- Evaluating and addressing nervous system dysregulation
- Addressing Triggers Comprehensively
- Histamines, Oxalates, Salicylates, FODMAPs, Lectins, Thiol Sensitivities
- Role of the Therapeutic Relationship
- Assessments and protocols used in the Mast Cell 360 clinic

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MC360® Practitioner Practicum

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Learn more and register: Mastcell360.com/hcp

Coupon Code: 2023HCP

Practitioners only
Must have a medical license or health coach certification with functional medicine training background

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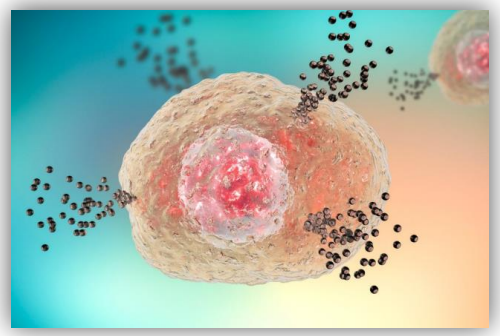

Themes for Each Day

Day 1: Big picture of MCAS and frameworks for healing

Day 2: Cell Danger Response and Order of Operations in MCAS

Day 3: Top MCAS Environmental Toxin Triggers

Day 4: Mold Toxicity and MCAS Special Considerations: Salicylates, Oxalates, and Sulfur Intolerance

Day 5: Infectious Mast Cell Triggers and MCAS Approaches

Day 6: Calming Sensitivities When Nothing is Working

Day 7: Improving your GI system with MCAS; Histamine, Lectins, and FODMAPs

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Your co-hosts

Kelly McCann, MD

Beth O'Hara, FN

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Summit Day 7

Steven Wright – Paraprobiotics for Retraining Immune System and Mast Cell Expression

Elisa Song, MD – Histamine, Mast Cell Activation and Pediatric Chronic Disease

Jill Carnahan, MD – Navigating Autoimmunity, Allergy, Gut, and Skin Issues in MCAS

Allison Siebecker, ND – The intersection of SIBO and MCAS: Histamine, Biome and Biofilms

Gail Clayton, DCN – Managing MCAS and Histamine Intolerance: from Food to Phenols to Pharmaceuticals

Mamak Shakib, DC – Understanding and Management of Postural and Skeletal Instability in Hypermobility

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Special Live Q&A Dates

- **Monday, October 16 at 11am Pacific / 2pm Eastern**
  Beth on Facebook - https://mastcell360.com/Oct16
- **Friday, October 20 at 11am Pacific / 2pm Eastern**
  Kelly on ZOOM– http://alturl.com/go23a
- **Thursday, October 26 at 3:30p Pacific/ 6:30 pm Eastern**
  Kelly and Beth on ZOOM - http://alturl.com/z5sgy
- **Friday, October 27 11am Pacific / 2pm Eastern**
  Kelly on ZOOM - http://alturl.com/c8fz8
- **Saturday, October 28 11 am Pacific / 2 pm Eastern**
  Beth on Facebook - https://mastcell360.com/Oct28

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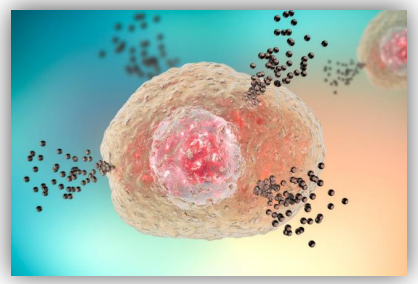

MCAS 101 Topics for Today

Improving your GI system with MCAS

- Major Triggers of GI Mast Cells
- Histamine Intolerance and MCAS
- Low Histamine Diet
- Lectin intolerance
- SIBO
- FODMAP Diet
- Additional tests to consider
- Treatment ideas

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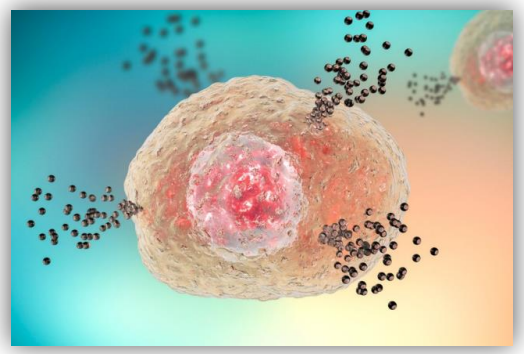

Mast Cells and the GI Tract

David Spoerl, Haig Nigolian, Christoph Czarnetzki, Thomas Harr. Int. J. Mol. Sci. 2017, 18(6), 1223; doi:10.3390/ijms18061223

Major Triggers of GI Mast Cells

- Food triggers
- Stress
- SIFO – Small Intestinal Fungal Overgrowth
- SIBO – Small Intestinal Bacterial Overgrowth
- IMO – Intestinal Methanogen Overgrowth
- Low Stomach Acid
- Low Pancreatic Enzymes
- Low DAO Enzymes
- Viruses
- Sometimes parasites

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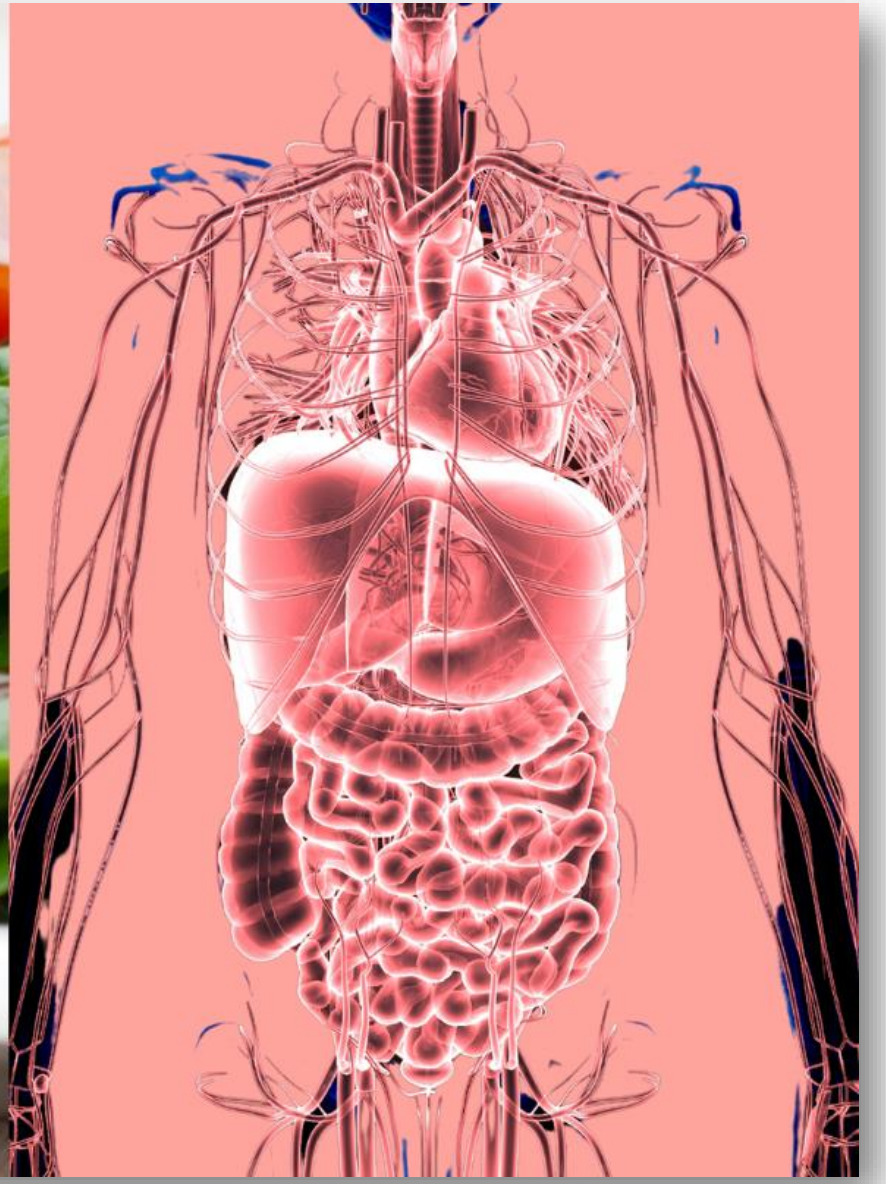
Where Does Histamine Come From?



Where Does Histamine Come From?

Histamine From Food

- High histamine foods
- Fermented foods
- Histamine-liberating foods like citrus fruits, strawberries, walnuts

Histamine Made in the Body

- Mast cells
- Basophils
- Eosinophils

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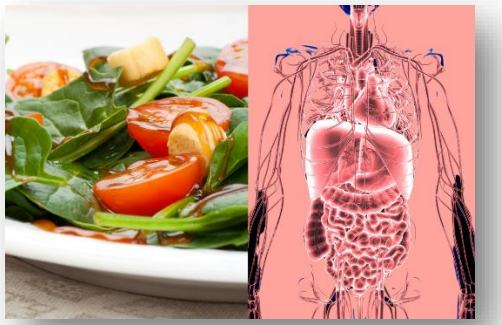

What is Histamine Intolerance?

- Histamine Intolerance is when your body can't handle the levels of histamine built up in your body
- Sometimes we call this your histamine load
- Response time usually needs at least 30 minutes or more
- Response time can happen hours or days later

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Why Does Histamine Build Up?

Why Does Histamine Build Up?

- Histamine isn't getting broken down in your body
- Enzymes that break down histamine, such as DAO and HNMT
- Not enough DAO or HNMT (or other important histamine degrading enzymes) can lead to an "overflowing sink"
  - Gut inflammation
  - Low nutrients
  - Methylation issues

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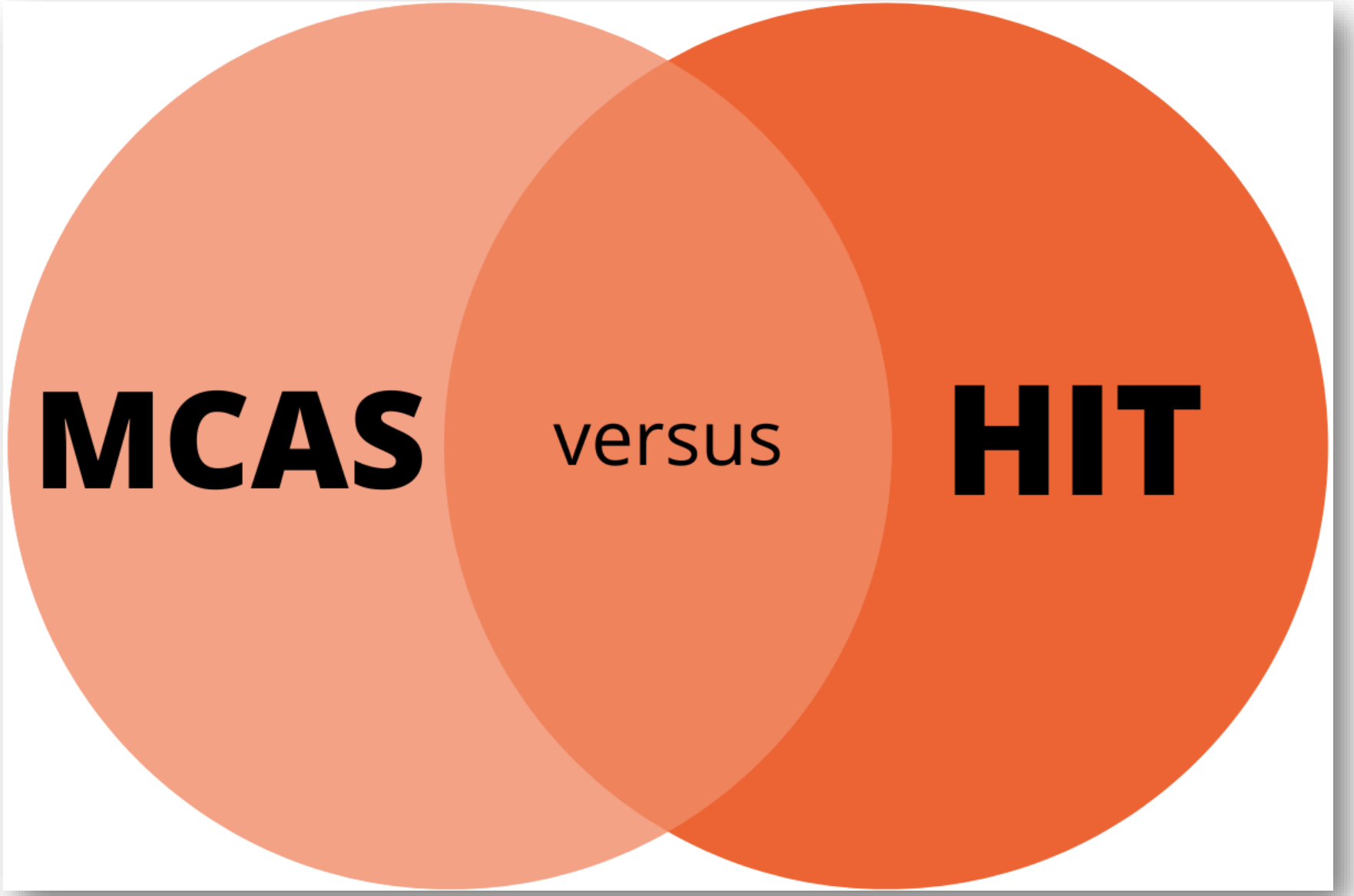
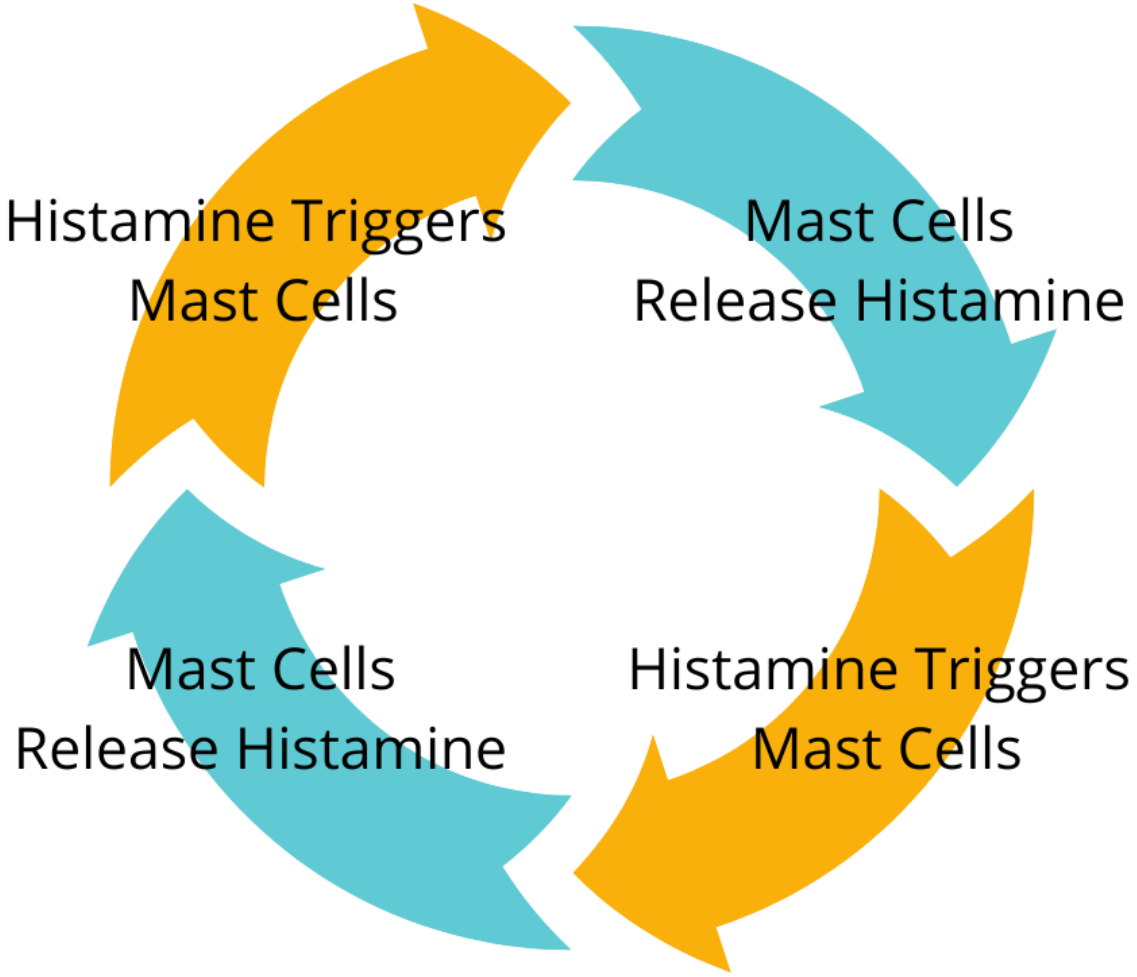
MCAS vs HIT



MCAS vs HIT

What can happen if you have both MCAS and HIT



Low Histamine Diet

Allowed

Animal Protein: Lamb, Poultry, unaged Beef and Bison, Flash Frozen Fish

Organic eggs only, if at all

Fruit: Apple, Mango, Blueberry, Cherry

Most herbs and a number spices are tolerated

Salt

Most tolerated foods will be highly individualized

Avoid

All dairy

All leftovers

Bone broth

Fruit: Avocado, Citrus, Strawberries, Grapes, Papaya, Pineapple, Plums, Dried and preserved versions

Legumes: Green beans, peas, soy

Nuts: cashews, peanuts, walnuts

Spices: cinnamon, chili, cumin, mustard, nutmeg, paprika

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Low Histamine Diet

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Animal Protein: Lamb, Poultry, unaged Beef and Bison, Flash Frozen Fish

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Low Histamine Diet - Vegetables

Generally Safe	Highly Individual	Best Avoided
Greens: • Arugula • Bok choy • Cabbage • Collards • Mustard greens • Watercress Non-starchy: • Artichokes • Asparagus • Broccoli • Brussels sprouts • Cauliflower • Onions (bulb, green/scallion) • Garlic Starchy: • Radish • Squash (summer or winter, excludes pumpkin)	*Greens:* • Beet greens • Chard • Dandelion greens • Escarole • Kale • Lettuce • Mesclun Non-starchy: • Celery • Cucumber • Fennel • Leeks • Rhubarb • Shallots Starchy: • Beets • Carrots • Cassava • Celery Root • Horseradish, fresh/whole • Jicama • Parsnips • Potatoes • Rutabaga • Sweet potato • Tiger nut, unroasted (root) • Turnip	• Eggplant • Eggplant • Mushrooms • Pumpkin • Spinach • Tomato (a fruit, but is often treated like a vegetable) • Pickles • Fermented vegetables (kimchee, sauerkraut)

Beth O'Hara, FN and Kelly McCann, MD

Trial of Low Histamine Diet

- Everyone with suspected MCAS and Histamine Intolerance should try a low histamine diet for at least 2 weeks.
- Consider adding back in some high histamine foods or histamine triggering foods and observe your response.
- These restrictive diets are not forever, but as you heal, you will be able to eat a wider variety of foods!
- DAO enzymes, medications and supplements may help broaden your palate in the meantime.

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What Are Lectins?

What Are Lectins?

Common Food Groups with Lectins:

- Many Grains – ie. corn, wheat, rice, oats, rye
- Legumes, including beans, lentils, soy, peanuts
- Plants in the cucumber family (melons, squash, cukes)
- Nightshade plants (tomatoes, potatoes, etc.)
- Genetically modified foods
- Cashews
- Certain Seeds – ie. chia, quinoa, pumpkin, sunflower

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Lectin Sensitivity

Why Are Lectins Harmful for Sensitive People?

Lectins can:

- Break down the gut barrier
- Contribute to autoimmunity
- Interfere with communications between cells
- Contribute to inflammation
- Trigger mast cells

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What is SIBO and IMO?

3 Types of SIBO – named after gases produced

- **Hydrogen** – more often causes diarrhea
- **Methane** – more often causes constipation
  - Renamed as Intestinal methanogen overgrowth (IMO)
- **Hydrogen Sulfide**
  - pungent gas
  - usually diarrhea
  - may have increase in symptoms with high sulfur foods

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SIBO, MCAS, and HIT

- SIBO can cause gut inflammation →
- amps up immune system →
- activates mast cells→
- histamine release →
- Increases overall histamine load →
- can lead to Histamine Intolerance if histamine enzymes can't keep up

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Dietary Treatment Options for SIBO

Low FODMAP Diet - Designed by researchers at Monash University to improve IBS symptoms. The diet focuses on removing carbohydrates that are high in fermentable oligosaccharides, disaccharides, monosaccharides and polyols.

Specific Carbohydrate Diet – Mainly used to treat inflammatory Bowel Disease, celiac disease, diverticulitis and chronic diarrhea, some people use it for treating SIBO.

SIBO Diet and **SIBO Bi-phasic diet**–Designed by Naturopathic physician experts, these diet is a combination of Low FODMAP and SCD diets and incorporate timing of reduction and re-introduction of foods.

Elemental Diet - Easily digestible, powdered, meal replacement, that starves the bacteria in the small intestine, but still feed the person with the necessary nutrients to sustain a healthy body.

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FODMAP Diet

- **F** – stands for **F**ermentable **O**ligosaccharides - Chains of sugars (typically 3-10 sugars) that occur naturally in plants such as onion, chicory, garlic, asparagus, banana, artichoke, among many others.
- **D** – stands for **D**isaccharides or double sugar- meaning 2 simple sugars. Table sugar, sucrose, is glucose and fructose. Or lactose (glucose and galactose).
- **M** – stands for **M**onosaccharides - glucose, fructose, galactose are examples.
- **P** – stands for **P**olyols - Sugar alcohols found in a range of fruits and vegetables including stone fruits and mushrooms. Sugar alcohols can also be used as sweeteners including xylitol, maltitol and isomalt.

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FODMAP Diet for SIBO

LOW FODMAP DIET

FOOD	VEGETABLES	FRUITS	PROTEINS	FATS	STARCHES, CEREALS & GRAINS
EAT	 lettuce, carrot, cucumber	 strawberries, pineapples, grapes	 chicken, eggs, tofu	 oils, butter, peanuts	 potatoes, tortilla chips, popcorn
AVOID	 garlic, beans, onion	 blackberries, watermelon, peaches	 sausage, battered fish, breaded meats	 almonds, avocado, pistachio	 beans, gluten-based bread, muffins

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Specific Carbohydrate Diet

- Most fresh fruits, frozen or dried without added sugars. Preferably Organic and unprocessed
- Non-starchy vegetables, including mushrooms
- All fresh or frozen meats, poultry and fish, preferably organic and wild-caught.
- Eggs and some Cow's and Goat's milk dairy products are allowed in the form of homemade yogurts, hard cheese and ghee or grass fed butter.
- All nuts and some seeds allowed.
- Fats, oils, condiments, vinegars, fermented foods, beans and legumes get much more complicated.

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SCD Diet

- Breaking the Vicious Cycle
- By Elaine Gottschall

SIBO Diet - Allison Siebecker, ND

The main principles of this diet are:

- No starch
- Low fiber
- Low fermentable fruits and veggies
- Limit portion sizes of fermentable foods
- No raw foods or beans at first
- Wait at least 4 hours between meals

- WHAT YOU CAN EAT
- As much as you want of:
- Any kind of meat
- Fat
- Restricted and or tiered items:
- Vegetables
- Fruit
- Nuts/seeds
- Squashes

- WHAT YOU CAN'T EAT
- No grain (yes, that includes quinoa and oats)
- No sugar
- No corn, soy or tubers
- No garlic or onions
- No thickeners – carrageen, guar gum, agar
- No mucilaginous foods- flax, chia, seaweeds, licorice, aloe, astragalus, slippery elm
- No bone broths *(cartilage broth is not allowed but marrow both is allowed)

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SIBO Diet

SIBO Food Guide
Vegetables

LESS FERMENTABLE → MORE FERMENTABLE

SCD "LEGAL" LOW FODMAP	SCD "LEGAL" MODERATE FODMAP	SCD "LEGAL" HIGH FODMAP	SCD "ILLEGAL"
Artichoke Hearts* 1/8 c	Asparagus 1 spear	Asparagus 4 spears	Bean Sprouts
Arugula	Artichoke Hearts* ¼ c	Artichoke	Corn
Bamboo Shoots	Butternut Squash ½ c/60g	Avocado	Okra
Beet 2 slices	Cabbage >1 c/98g	Beet 4 slices	Potato: white/all colors
Bok Choy 1 c/85g	Cabbage: Savoy 3/4 c	Bok Choy 1½ c/127g	Potato: sweet
Broccoli ½ c/1.6oz	Leek ½ ea/42g	Broccoli 1 c	Starch powder: all arrowroot, corn, potato, rice, tapioca
Brussels Sprouts 2 ea	Parsnip	Brussels Sprouts 6 ea/ 114g	Seaweeds
Cabbage 1 c/98g	Pepper: Chili 40g	Cabbage: Savoy 1 c	Turnip
Cabbage: Savoy ½ c	Peas, green 1/3c	Cauliflower	Taro
Carrot	Spinach >15 leaves/ 150g	Celery	Water Chestnuts
Celery Root/Celeriac	Tomato: soup/juice	Fennel bulb >1 c, leaves >3c	Yam
Chives	Tomato: Sun-dried 2 T/15g	Garlic	Yucca
Cucumber		Jerusalem artichoke	Canned vegetables
Eggplant		Leek 1 ea/84g	
Endive		Mushrooms	
Fennel bulb ½c, leaves 1c		Onions	
Green Beans 10ea/2.5oz		Peas, green ½ c/72g	
Greens: lettuce, collard, chard, kale, spinach		Snow Peas 10 pods	
Olives		Scallions: white part	
Peas, green ¼ c		Shallot	
Peppers: Bell/ Sweet		Sugar Snap Peas	
Peppers: Chili 11cm/28g		Zucchini >¾ cup	
Radicchio 12 leaves			
Radish			
Rutabaga			
Scallion: green part			
Snow Peas: 5 pods			
Squash: Butternut ¼ c Kobocha, Sunburst, Yellow, Zucchini ¾ c			
Tomato			

Dr. Siebecker 1/13/14

Fruits

LESS FERMENTABLE → MORE FERMENTABLE

SCD "LEGAL" LOW FODMAP	SCD "LEGAL" MODERATE FODMAP	SCD "LEGAL" HIGH FODMAP	SCD "ILLEGAL"
Banana: fresh, dried	Berries: cranberry 1T	Apple	Plantain
Berries: blueberry < 80 ea boysenberry strawberry raspberry 10ea/19g	Cherries 3 ea	Apricot	
Carambola	Citrus: grapefruit ½ ea 104g	Avocado	Jam/Jelly: commercial
Citrus: lemon, lime, oranges, tangelos, tangerine	Longon 10ea/30g	Berries: cranberry 2 T blueberry >80/100g blackberry raspberry >50 ea	
Current, dried 1Tb	Lychee 5 ea	Cherries 6 ea	
Dragon Fruit	Melon: honeydew >½ cup/100g	Citrus, grapefruit 1ea 207g	
Durian	Passion fruit >4 pulps/ 100g	Current, dried 2Tb	
Grapes	Pineapple, dried 1 slice	Custard Apple	
Guava	Rambutan 4ea/62g	Date, dried	
Kiwifruit		Fig, dried	
Longon 5 ea/15g		Mango*	
Melon: cantaloupe/rock, honeydew ½ c/100g		Nectarine	
Papaya/Paw Paw		Papaya, dried	
Passion fruit 4 pulps/ 100g		Peach	
Pineapple		Pear	
Pomegranate ½ ea/ 38g, ¼ c seeds		Pear: nashi	
Prickly Pear		Persimmon	
Rambutan 2 ea/31g		Plum	
Rhubarb		Pomegranate 1 ea/ 76g, ½ c seeds	
		Prunes	
Jam/Jelly: homemade (no pectin, sugar)		Raisons	
		Tamarillo*	
		Watermelon	
		Canned fruit in high fodmap fruit juice	

Dr. Siebecker 1/13/14

SIBO Biphasic Diet

- **PHASE ONE** – Reduce for 4-6 weeks the fermentable starches and fibers to starve the bacteria.
- Divided into 2 groups to adjust the strictness of the diet.
- **Restricted Diet** – Everyone starts here. Then after 1-2 weeks can progress to...
- **Semi-Restricted Diet** - if you improve quickly or are at risk from weight loss or need more energy from starchy foods.
- **PHASE TWO** – Reintroduction (4-6 weeks) plus supplements to enhance the success of antimicrobial therapies.

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SIBO Biphasic Diet

PHASE ONE DIET — REDUCE (4–6 WEEKS)

	RESTRICTED	SEMI-RESTRICTED — ADD THESE FOODS (NOTHING TO ADD IF BLANK)	AVOID
PROTEIN – OMNIVORE OPTIONS organic, grass-fed where possible	**MEAT:** Beef, Chicken, Duck, Game hens, Kangaroo, Lamb, Organ meats, Pork, Quail, Turkey, Venison **EGGS:** chicken, quail, duck		Processed deli meats
PROTEIN – CLEAN SEAFOOD low in pollutants	Alaskan or Pacific salmon (wild caught) Barramundi Herring Pacific cod Oysters Sardines Scallops Shrimp/prawns (local) Snapper Trout Whiting		Farmed seafood Marlin Shark Shrimp/prawns (imported) Swordfish Tuna
PROTEIN – PLANT-BASED OPTIONS organic where possible, non-GMO	Tofu firm – 100g Tempeh – 100g SIBO-friendly protein powder *(see page 14)*	**SOAKED AND COOKED:** ¼ cup Black eye peas Lima (butter) beans Mung beans Red/brown lentils	All legumes not listed in the 'approved' list
DAIRY	AVOID	AVOID	AVOID
VEGETABLES unlimited	**LETTUCE:** All loose leaf lettuce Chicory Endive Gem varieties Head lettuce varieties: iceberg, butter, bib, mignonette, cos, romaine etc Radicchio Rocket/arugula Witlof **VEGETABLES:** Bamboo shoots Ginger Capsicum/pepper (red) Cucumber Eggplant Olives (in brine or olive oil) Spring onion (green part only) Tomato Yellow squash (summer/button) **LEAFY GREENS:** Bok choy Chard leaves (swiss, silverbeet etc) Choy sum Kale (tuscan, curly leaf)	Parsnip	Canned vegetables Cauliflower Corn Garlic Mushrooms Onions Products containing starch powder (corn, potato, rice, tapioca)

PHASE ONE DIET — REDUCE (CONT'D)

	RESTRICTED	SEMI-RESTRICTED — ADD THESE FOODS (NOTHING TO ADD IF BLANK)	AVOID
VEGETABLES CONT'D unlimited	**SPROUTS:** Alfalfa Broccoli Mung bean (sprout length = 7cm) Radish Snow peas Sunflower		
VEGETABLES limited to 2 serves per meal	Asparagus – 1 spear Artichoke hearts – 1/8 cup Beetroot – ¼ cup Broccoli – ½ cup Brussels sprouts – 2 sprouts Cabbage – ½ cup Cabbage (savoy, wombok, red, green) – ½ cup Carrot (orange) – 1 cup Celery – 1 stick Celery root – ½ cup Fennel bulb – ½ cup Green beans – 10 beans Leek (green leaf) – ½ cup Nori seaweed – 1 sheet Peas (green) – ¼ cup Sugar snap or Snow peas – 5 pods Spinach (baby) – 1 ½ cups (raw) Spinach (English, mature) – 2 cups Squash (spaghetti) – ½ cup Zucchini (yellow/green) – ¾ cup	Asparagus – 2-3 spears Brussels sprouts – ½ cup Pumpkin – ½ cup Leek – ½ ea Spinach – >15 leaves/150g Zucchini – 1 cup	
STARCHY VEGETABLES limited to 1 serve per meal	Carrot (yellow/purple/red/white) – ¼ cup Pumpkin (kabocha, kent, butternut) – ¼ cup	Potato (peeled) – ½ cup Pumpkin – ½ cup	Potato (unpeeled) Sweet potato
FRUIT 2 serves per day	Lemons Limes	Avocado – ¼ Banana – ½ Berries (all varieties) – ½ cup Carambola/Star fruit – 1 med size Cherries – 3 Citrus – 1 piece Grapes – 10 Honeydew – ¼ cup Kiwi – 1 piece Lychee – 5 Papaya – ¼ cup Passion fruit – 1 piece Pineapple – ¼ cup Pomegranate – ½ small or ¼ cup of seeds Rhubarb – 1 stalk Rockmelon/cantaloupe – ¼ cup	Apple Apricot Blackberries Canned fruit in fruit juice Custard apple Fig Jam Mango Nashi Nectarine Peach Pear Persimmon Plum

PHASE TWO DIET — REINTRODUCE (4–6 WEEKS)

	APPROVED	AVOID
PROTEIN – OMNIVORE OPTIONS organic, grass-fed where possible	**MEAT:** Beef, Chicken, Duck, Game hens, Kangaroo, Lamb, Organ meats, Pork, Quail, Turkey, Venison **EGGS:** chicken, quail, duck	Processed deli meats
PROTEIN –CLEAN SEAFOOD low in pollutants	Alaskan or Pacific salmon (wild caught) Barramundi Herring Pacific cod Oysters Sardines Scallops Shrimp/prawns (local) Snapper Trout Whiting	Farmed seafood Marlin Shark Shrimp/prawns (imported) Swordfish Tuna
PROTEIN – PLANT-BASED OPTIONS organic where possible, non-GMO	Tofu firm – 100g Tempeh – 100g SIBO-friendly protein powder **SOAKED AND COOKED:** ½ cup Adzuki beans Black eye peas Lentils (red/brown) Lima (butter) beans Mung beans	All legumes not listed in the 'APPROVED' list
DAIRY/ NON-DAIRY organic, grass-fed where possible	**CHEESE:** ½ cup/40g Cheddar, Goat, Haloumi, Havarti, Mozzarella, Parmesan, Pecorino, Soy, Swiss **CHEESE - OTHER:** 2 tbsp Cottage, Feta, Quark **YOGURT:** Coconut – ½ cup Cow/goat milk (24 hr ferment) – ½ cup Lactose free – ¾ cup Kefir – 2 tbsp Quark – 2 tbsp	All other dairy products unless allowed by your practitioner
VEGETABLES unlimited	**LETTUCE:** All loose leaf lettuce Chicory Endive Gem varieties Head lettuce varieties: Iceberg, Butter, Bib, Mignonette, Cos, Romaine etc Radicchio Rocket/Arugula Witlof	Cauliflower Corn Garlic Mushrooms Onions Avoid canned vegetables with preservatives + additives

Elemental Diet

- Commercially available or homemade options
- Provides nutrition for human but not bacteria
- Meal Replacement for 2-4 weeks.
- Depending on degree of gas, I recommend at least 2 weeks exclusively on elemental Diet.
- Followed by 2 weeks of transition.
  - 1st week – 1 SIBO friendly meal and 2 shakes per day
  - 2nd week – 2 SIBO friendly meals and 1 shake per day
- Reintroduction of less SIBO friendly foods.

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Personalized Diet Plan works best

- Try a low histamine diet
- Consider gluten, dairy, sugar, soy free diet.
- Look at other food intolerances
- Elimination diets
- Food sensitivity testing

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Don’t Eliminate Foods Unnecessarily

Treating Food Allergies and Sensitivities

- Allergy Shots
- Sublingual Immunotherapy (SLIT)
- Low dose Allergy therapy (LDA)

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Still having GI symptoms? Additional Tests

- If you've cleaned up your diet, assessed for SIBO/ IMO/SIFO, treated the MCAS and you are still having symptoms...
- Microbiome stool testing
- Organic acid testing
- Parasite testing
- Other infections
- Candida sensitivity
- Structural issues

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Next Step if You have MCAS

- For an individualized, Functional Medicine approach to your health working with Dr Kelly and her medical team. Visit:

https://thespringcenter.com/contact/

- For a Deep Dive to empower yourself with knowledge about your exposures. Check out Dr Kelly's in-depth Masterclass:

https://drkellymccann.com/mcas-how-to-regain-control/

- For resources, supplements or register for our Live Q&As on Toxins and Mold visit: https://drkellymccann.com

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Your Summit Resource Pages

Mastcell360.com/summit

- Special discounts available only through the summit
- Links to papers, books, products and other resources mentioned in talks at your fingertips
- Additional special downloads, including these slides and our Food Intolerances Shopping Lists

Drkellymccann.com/summit-resources

- Links to Summit related information including Dr. McCann's favorite book resources, scientific articles and blogs.
- Quick access to The Spring Center Clinic and The Spring Center Store, as well as MCAS supplement recommendations.
- Downloadable freebies on environmental toxins and other triggers of MCAS

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