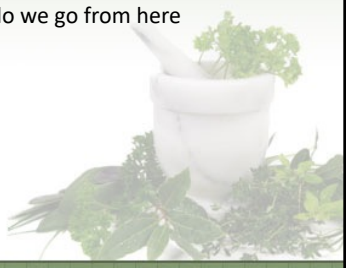
NATURALLY INFORMED
Powered by WholeFoods Magazine and Trust Transparency Center

Immune Health 2-Years Into COVID-19

What we have and haven't learned and where do we go from here



Herbal Pharmacist®

DAVID J. FOREMAN, RPH, ND

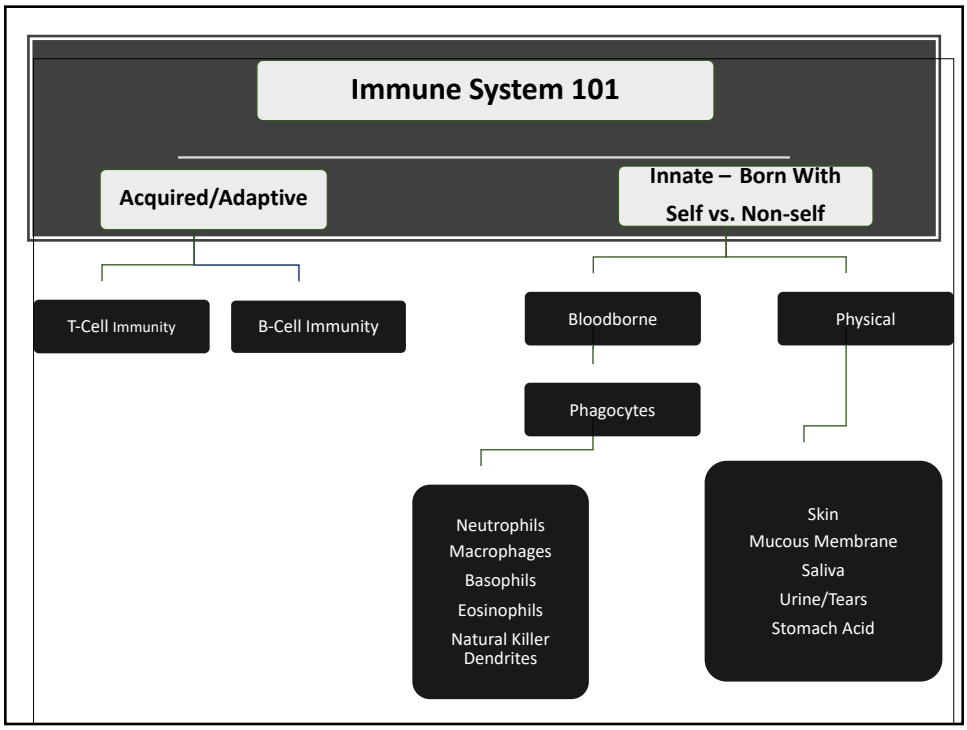
1

What's on the agenda?

Four Areas of Focus

- **Immune System 101**
- **Square Pegs are for Square Holes**
- **Categories of Immune Help**
- **Knowledge is Power**

2



3

Acquired Immunity 101

Acquired immunity is activated by exposure to pathogens (virus, bacteria, fungus, etc.)

- **Uses "memory"** to learn about the threat and enhance the immune response accordingly
- **Immune response is slower** than the innate response
- Antigen (virus, bacterium, etc.) — Antibody response (Immune response)

B Cells (formed in bone marrow) i.e., B-cell

- Effector cells — Help the body produce more antibodies
- Memory cells — Remember the previous pathogen for future exposure

T Cells (formed in bone marrow and migrate to the Thymus) i.e., T-cell

- T-helper — Activate T, B and other immune cells to respond
- Cytotoxic T — Remove pathogens and infected host cells
- T regulatory — Help distinguish between self and non-self (reducing the risk of autoimmune diseases)

4

Innate Immunity 101

Phagocytes — Eat Non-self cells (Security Guard)

- **Macrophages —** Roam throughout all tissue
  - Produce Cytokines — Chemical messengers to communicate with other immune cells
- **Mast —** Found in mucous membrane and connective tissue
  - Cytokines create inflammation
    - Alert other immune cells such as macrophages and neutrophils
- **Neutrophils —** Release granules which are toxic to bacteria and fungi
- **Eosinophils —** Release granules which are toxic to bacteria and parasites
- **Basophils —** Similar to both mast and eosinophils
- **Natural Killer —** Destroy infected cells in order to stop the spread of an infection
- **Dendritic —** Act as bridge between the innate immune system and the adaptive immune system by identifying threats

5

CYTOKINES 101

Confusing and Misleading Information

Cytokines are GOOD:

When you need to fight off an infection.

Cytokines can be BAD:

When you have an inflammatory health challenge

or

When the body can't turn them off

Cytokines:

- Interact with cells of the immune system to regulate the body's response to disease and infection.
- Some cytokines stimulate the immune system, and others slow it down.
- Immune cells use cytokines as messengers to other immune cells.

Questions we need to ask ourselves when formulating

If you were concerned with getting sick from COVID-19, would you consider taking a supplement that suppressed cytokine production?

Is taking a cytokine suppressing supplement the best way to avoid getting sick?

6

Which Ingredient Helps for What?

Stimulate

- Use Short-Term for Acute Exposure
  "coming down with something"
- Increase Immune Cell Production/Activity

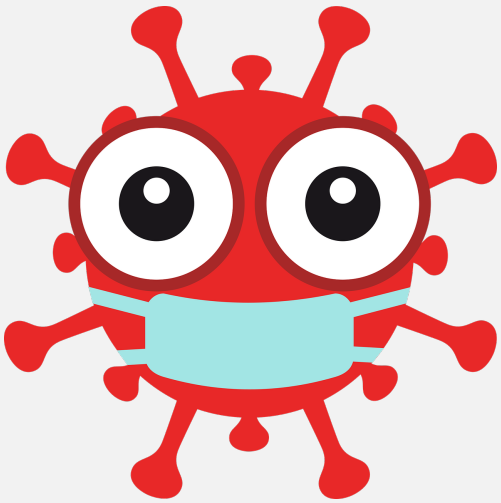
Support

- Use Long-Term
  "Prevention"
- Supports the functionality of the immune system

7

STIMULATE

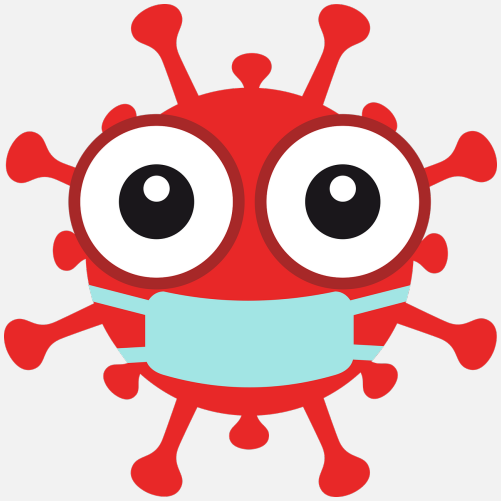
- Echinacea
- Vitamin C
- Zinc (lozenge or chewable)



8

SUPPORT

- Beta-glucans: 1/3 or 1/3-1/6
- Berry Extracts: Elderberry, Amla, Bilberry, Lingonberry
- Black Cumin Seed Oil
- Chaga/Maitake/Reishi
- Curcumin
- Palmitoylethanolamide (PEA)
- Prebiotic fibers
- Probiotics
- Vitamin D



9

OTHER CONSIDERATIONS

UNDERLYING RISK FACTORS

Stress

- Ashwagandha
- Holy Basil
- Kanna
- Saffron

Sleep

- L-theanine
- Magnesium
- PEA
- Saffron

10

Knowledge is Power!

What should the consumer know?

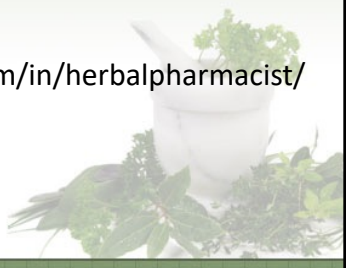
- Is the ingredient for a square or round hole?
- What type of immune support does it really give or impact?
- How long should it be taken?
- How long does it take to work?
- Does it interact with any medications or health conditions?

11

Thank You

david@herbalpharmacist.com

https://www.linkedin.com/in/herbalpharmacist/



NATURALLY INFORMED
Powered by WholeFoods Magazine and Trust Transparency Center

Herbal Pharmacist®

DAVID J. FOREMAN, RPH., ND

12