



ThoughtSpot

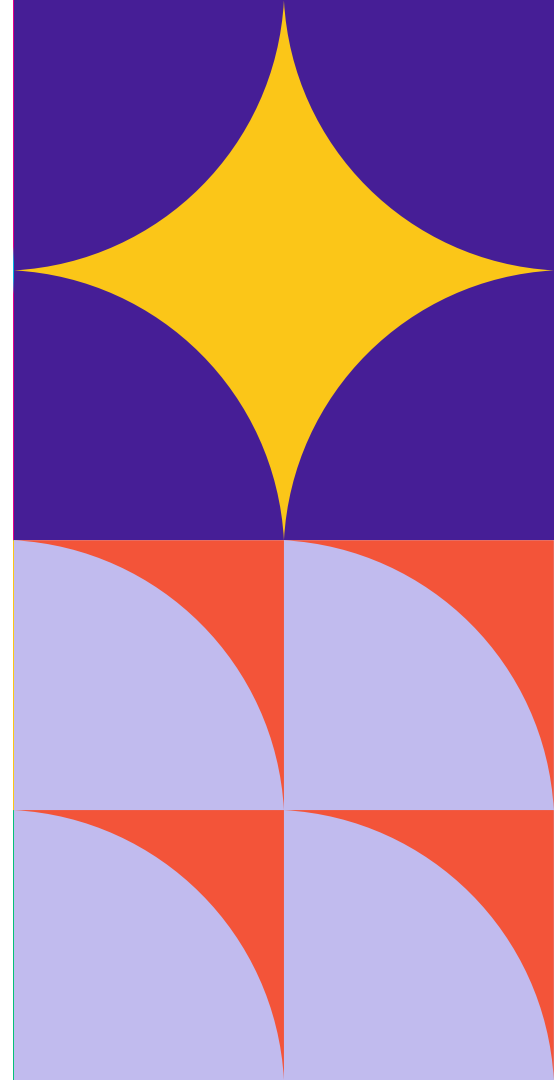
Pharmacist-Led Lifestyle and Wellness Intervention-A Proactive Approach to Patient Care

Kathy M. Campbell, PharmD
DrKathy Health,
Wellness Pharmacy Solutions
Las Vegas, July 2025

Disclosure Statement

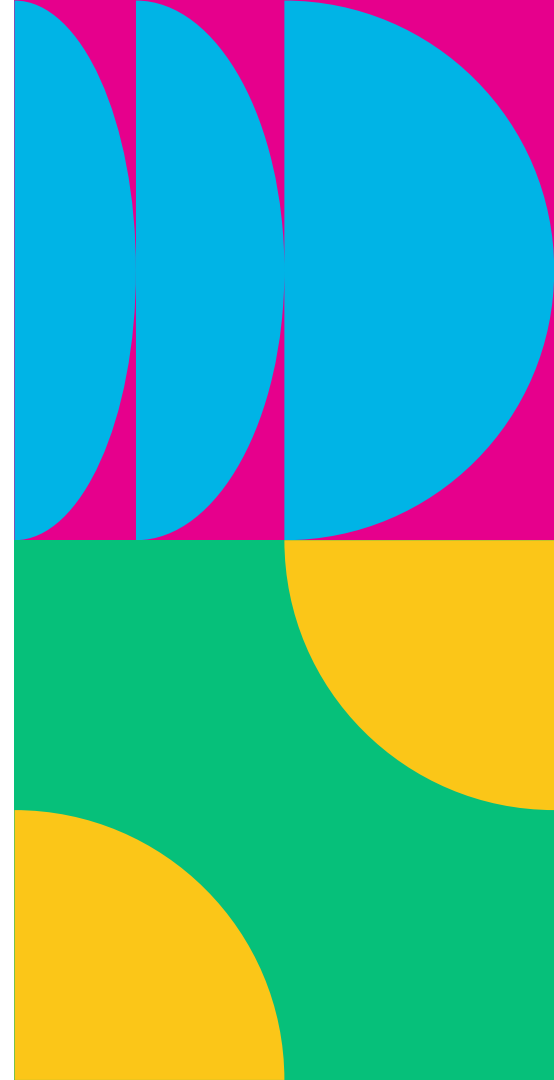
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Learning Objectives

1. Identify two mechanisms by which food impacts drug effectiveness.
2. Define the 'Pharmacist's Advantage' and its role in wellness outcomes.
3. Review three wellness-focused service offerings.



Speaker



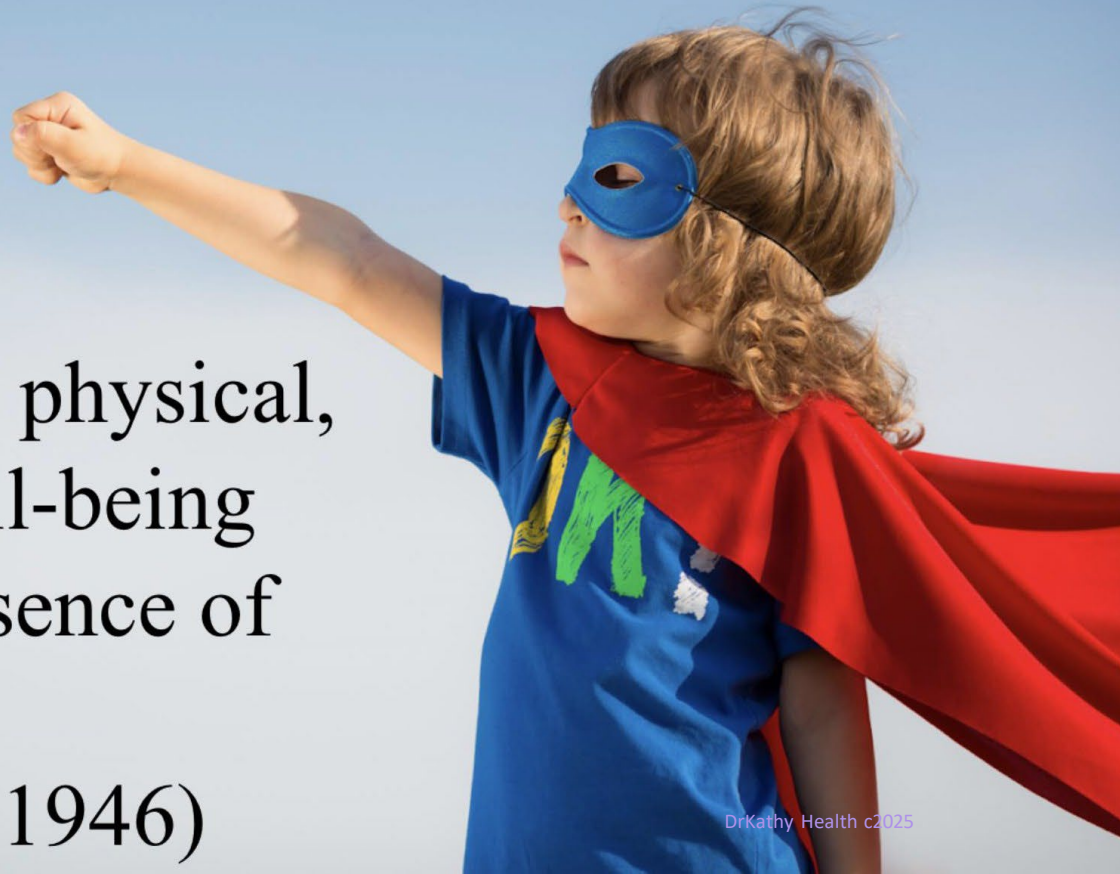
Kathy M. Campbell, PharmD

DrKathy Health,
Wellness Pharmacy Solutions

Health

“...[S]tate of complete physical, mental, and social well-being and not merely the absence of disease, or infirmity”

(W.H.O. 1946)



HEALTH is.....

VITALITY



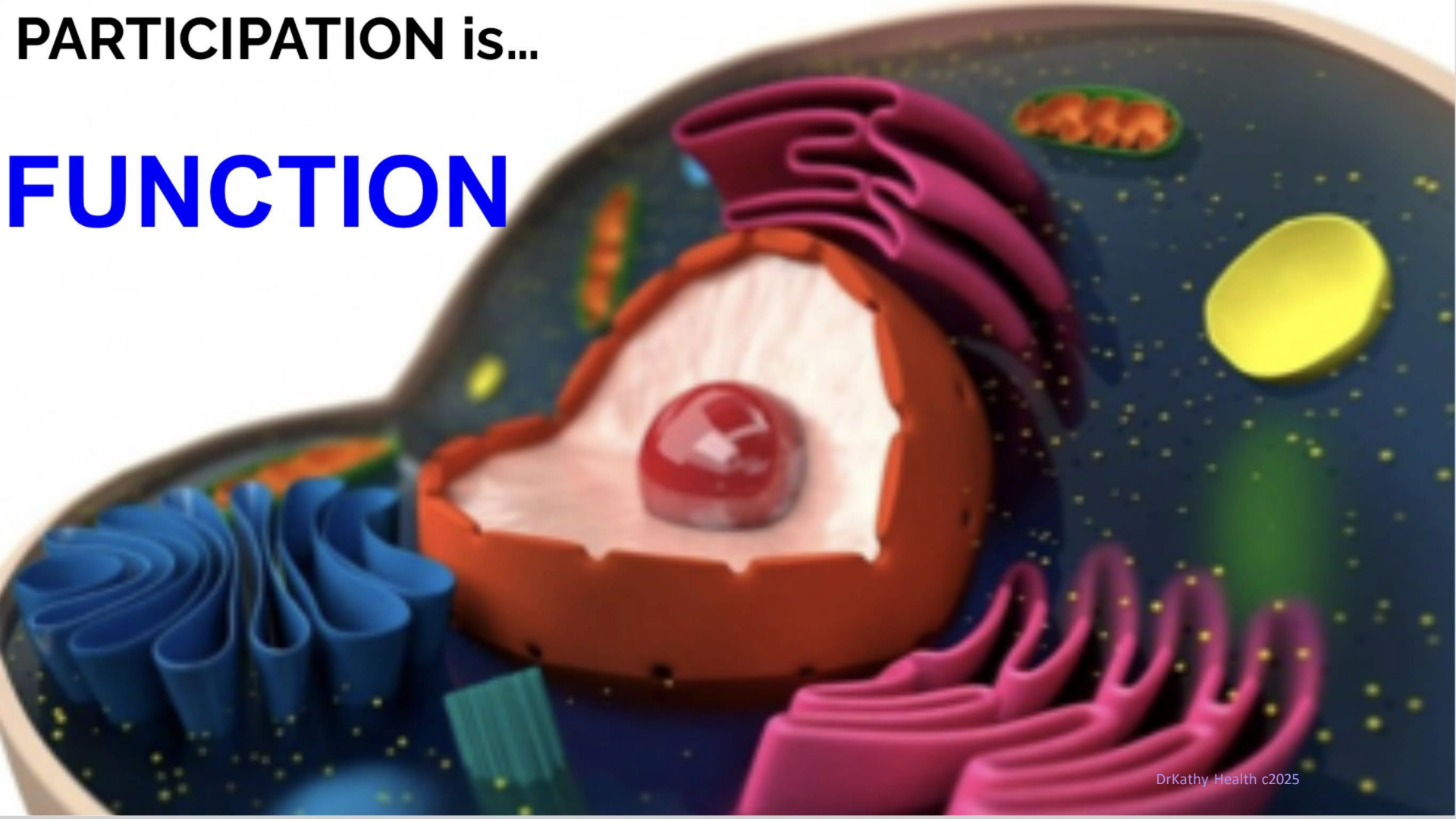
VITALITY is...

PARTICIPATION



PARTICIPATION is...

FUNCTION



The background of the slide is a blurred ECG (heart rate) line on a grid. The grid consists of a light orange background with a darker orange grid. The ECG line is black and shows a regular rhythm with distinct P waves, QRS complexes, and T waves. The word "FUNCTION" is centered over the ECG line in a large, white, sans-serif font.

FUNCTION

To operate in a normal way

HEALTH=FUNCTION

Health is to operate in a 'normal' way.

- Physical
- Behavioral
- Cognitive
- **Metabolic**



- Clinical Community Pharmacist practicing in Owasso, Oklahoma for 33 years
- Independent pharmacy owner for 24 years
- Mom to Emma and Abby for 24 years
- Wife and partner to Royce 26 years
- **Morbidly Obese** much of 53 years



Wellness Pharmacist and Lifestyle Practitioner

Reactive

‘after movement’

- Acting in response to a situation of stimuli rather than creating or controlling it.
- Traditional pharmacy business model is reactive to diagnosis, RX order, etc.

Proactive

‘before movement’

- Creating or controlling a situation by causing something to happen, rather than responding to it after it has happened.

SELF-CARE HEALTHCARE

A close-up photograph of a wooden Scrabble board. A wooden rack holds five tiles spelling the word 'LINE'. Several other tiles are scattered on the board, including 'A', 'L', 'B', 'C', 'S', 'E', 'N', 'D', and 'A'.

REACTIVE HEALTH

- SICK- FEELS BAD
- Severely diminished function
- Diagnosis driven
- Pharmacy/medication
- Rehabilitation
- Insurance manipulated
- TRANSACTIONAL



PROACTIVE HEALTH

- **Preservation/Increase of Function**
- **Consumer Driven (mama/employer)**
- **Functional Assessment**
- **Direction vs Diagnosis**
- **Education/COACHING/Partnership**
- **Diet/Cooking (Food Pharmacology)**
- **Supplements/Medications/Lifestyle**
- **Empowered Patient/Feels GOOD**
- **LONG-TERM RELATIONSHIP**

WELLNESS

- The quality or state of being healthy in body and mind, especially as the result of **deliberate effort**.
- The quality or state of being in good health, especially as an **actively sought goal**.
- An approach to healthcare that emphasizes **preventing illness** and prolonging life, as opposed to emphasizing treating diseases.





Wellness

The state of being healthy,
especially when it is something
that you actively try to achieve.

Where do consumers go to be well??



- Clinical Community Doctor of Pharmacy practicing in Owasso, OK for 33 years
- Independent pharmacy owner for 24 years
- Wife & partner to Royce 26 yrs
- Mom to Emma and Abby 24yrs
- **Patient & Pharmacy Advocate**

WELLNESS PHARMACIST



Weakness



Slow walking
speed



Low level of
physical activity



Fatigue or
exhaustion



Unintentional
weight loss

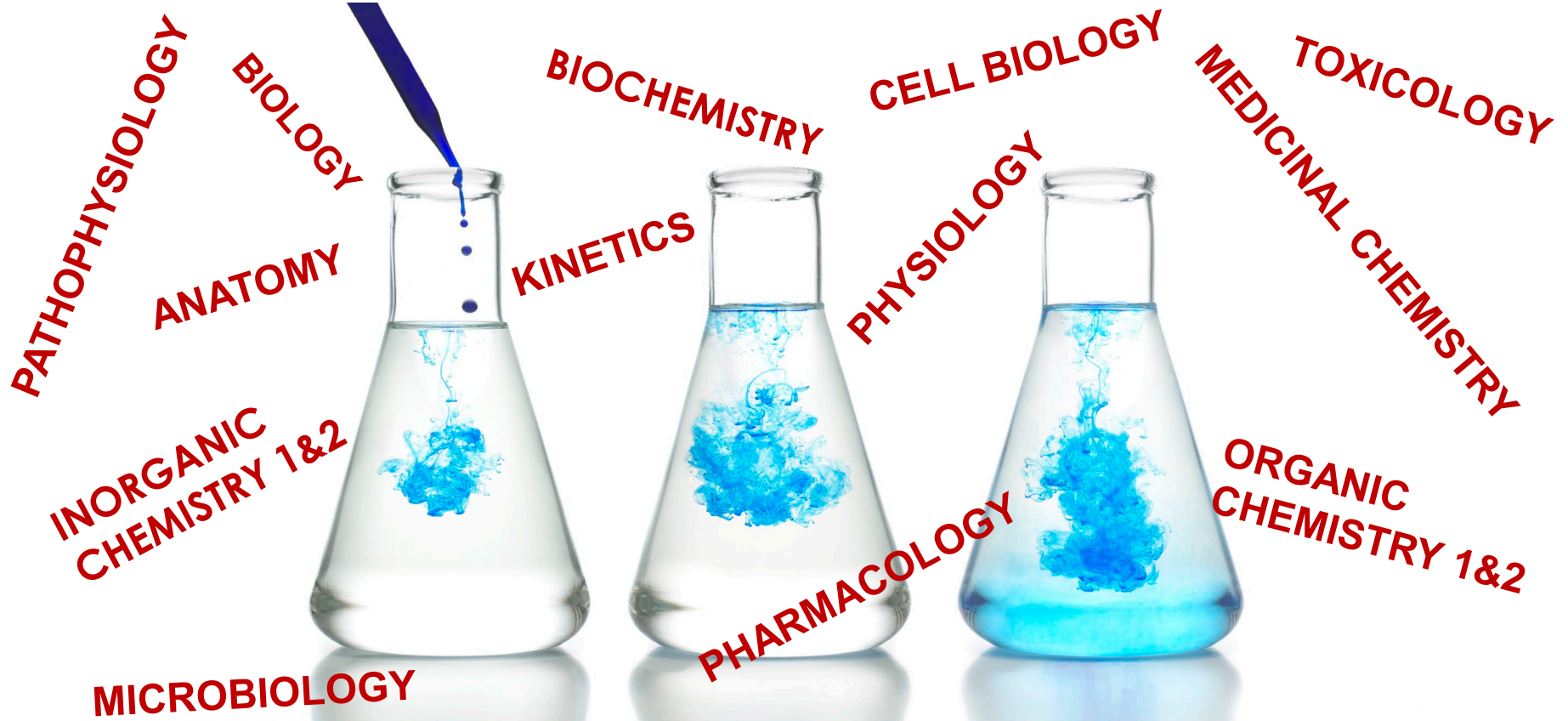


Adman
© 2021 JHUAAM

Destination:Nursing Home...



THE MAKING OF A PHARMACIST



Pharmacology

a branch of medicine, biology, and pharmaceutical sciences concerned with drug or medication action, where a drug may be defined as **any artificial, natural, or endogenous molecule** which exerts a biochemical or physiological effect on the cell, tissue, organs, or organism.

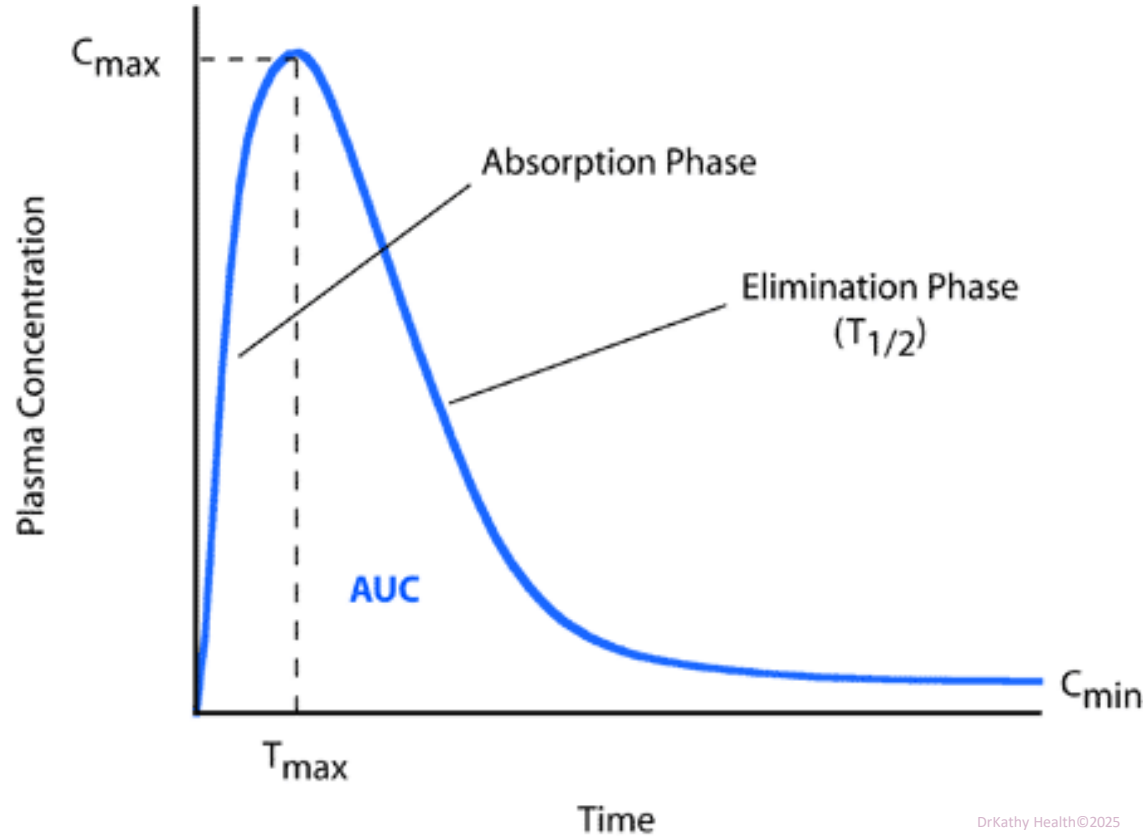
[Wikipedia](#)



PHARMACOKINETICS *Greek for 'Drug movement'*

The effect the body has on medications

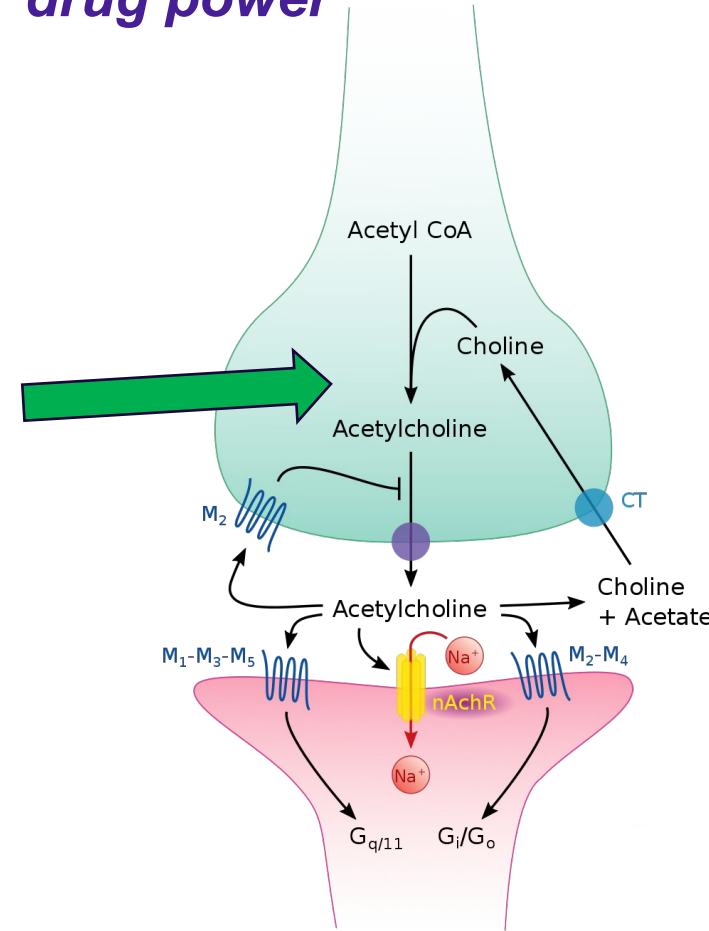
- Absorption
- Distribution
- Metabolism
- Excretion



PHARMACODYNAMICS- Greek “drug power”

The effects medications have on the body

The study of the biochemical and physiological effect of a drug and their mechanisms of actions at the organ system/sub cellular/macro cellular levels.



‘Therapeutic drug monitoring is a fundamental responsibility of pharmacists to provide optimum therapeutic outcomes for patients’





PHARMACOLOGY

Rx-OTC

Poly-Pharmacy

Drug-Induced Nutrient Deficiency
Supplements

Endogenous Hormones-Insulin,
GLP-1, Cortisol, estrogen, etc.

Botanicals

TOXINS-ULTRA-PROCESSED
FOODS

Illicit, Alcohol

Pharmacogenomics

- Metformin
- Atorvastatin
- Duloxetine
- Cyclobenzaprine
- Lisinopril
- Oxybutinin
- Docusate Sodium



Pharmacist's Advantage

Who is this??

What is going on??

What is the emotional experience?

What is life like for this patient?

What conditions created this need?

What is the future progression?

Where can you interrupt?



The PHARMACIST'S ADVANTAGE

Pharmacists are *trained in altering and optimizing metabolic function* with the selection, creation, dispensing, monitoring, and adjusting of therapeutic interventions in order to achieve optimal health outcomes.

**PHARMACISTS KNOW HOW TO
NOT NEED MEDICATIONS!**



Pharmacist Paradox – Dunning-Kruger Effect

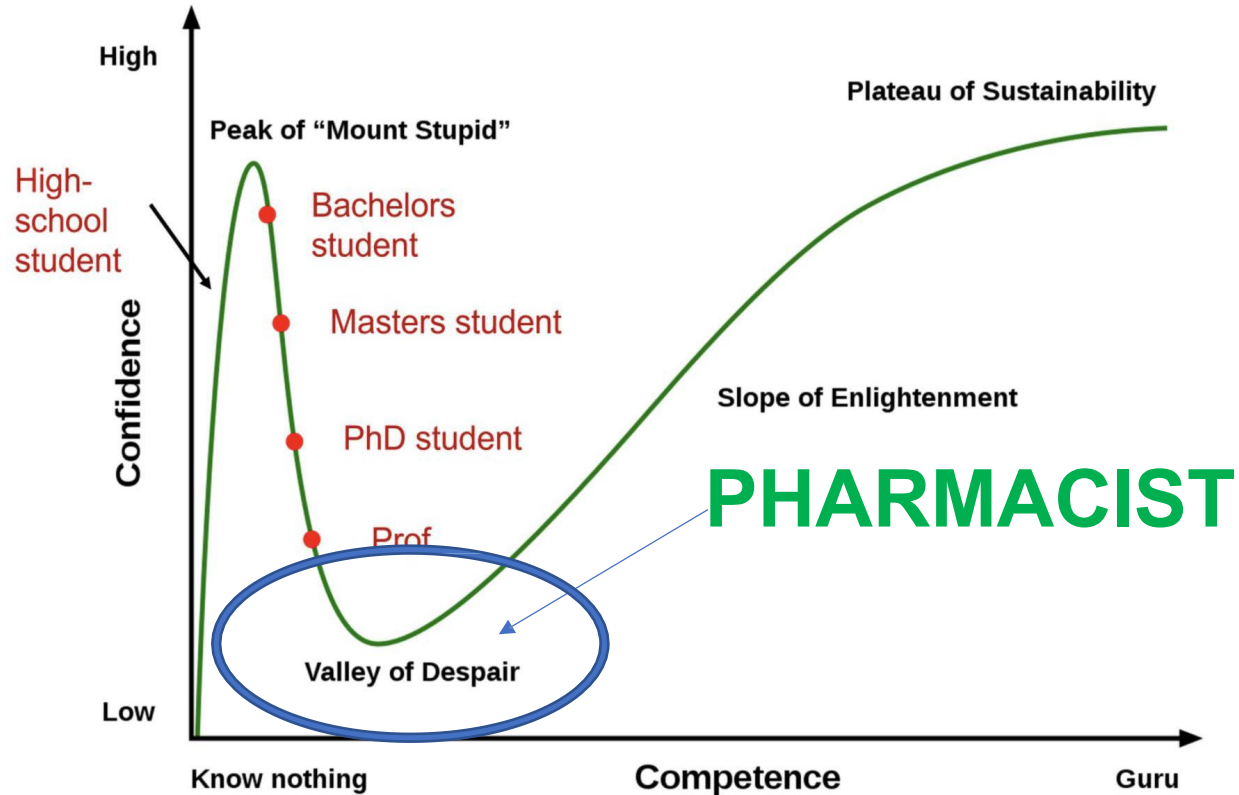
- The **Dunning–Kruger effect** is a cognitive bias whereby people with **low ability, expertise or experience** regarding a certain type of a task or area of knowledge tend to overestimate their ability or knowledge.
- Some researchers also include in their definition the opposite effect for high performers: their tendency to underestimate their skills.

Dunning, D. (2011). The Dunning-Kruger Effect: On Being Ignorant of One's Own Ignorance. In J. M. Olson, & M. P. Zanna (Eds.), *Advances in Experimental Social Psychology* (Vol. 44, pp. 247-296). Cambridge, MA: Academic Press. <https://doi.org/10.1016/B978-0-12-385522-0.00005-6>

Dunning -Kruger Effect

“The kid at the vitamin shop has all of the confidence and none of the knowledge; the pharmacist has all of the knowledge and none of the confidence.”

Kathy Campbell, PharmD, 2017





WELLNESS PHARMACIST

A trusted health care professional extensively trained in chemistry, therapeutics and metabolic optimization with the focus of proactively preserving health, function and minimizing the need for medications.



WELLNESS PHARMACIST

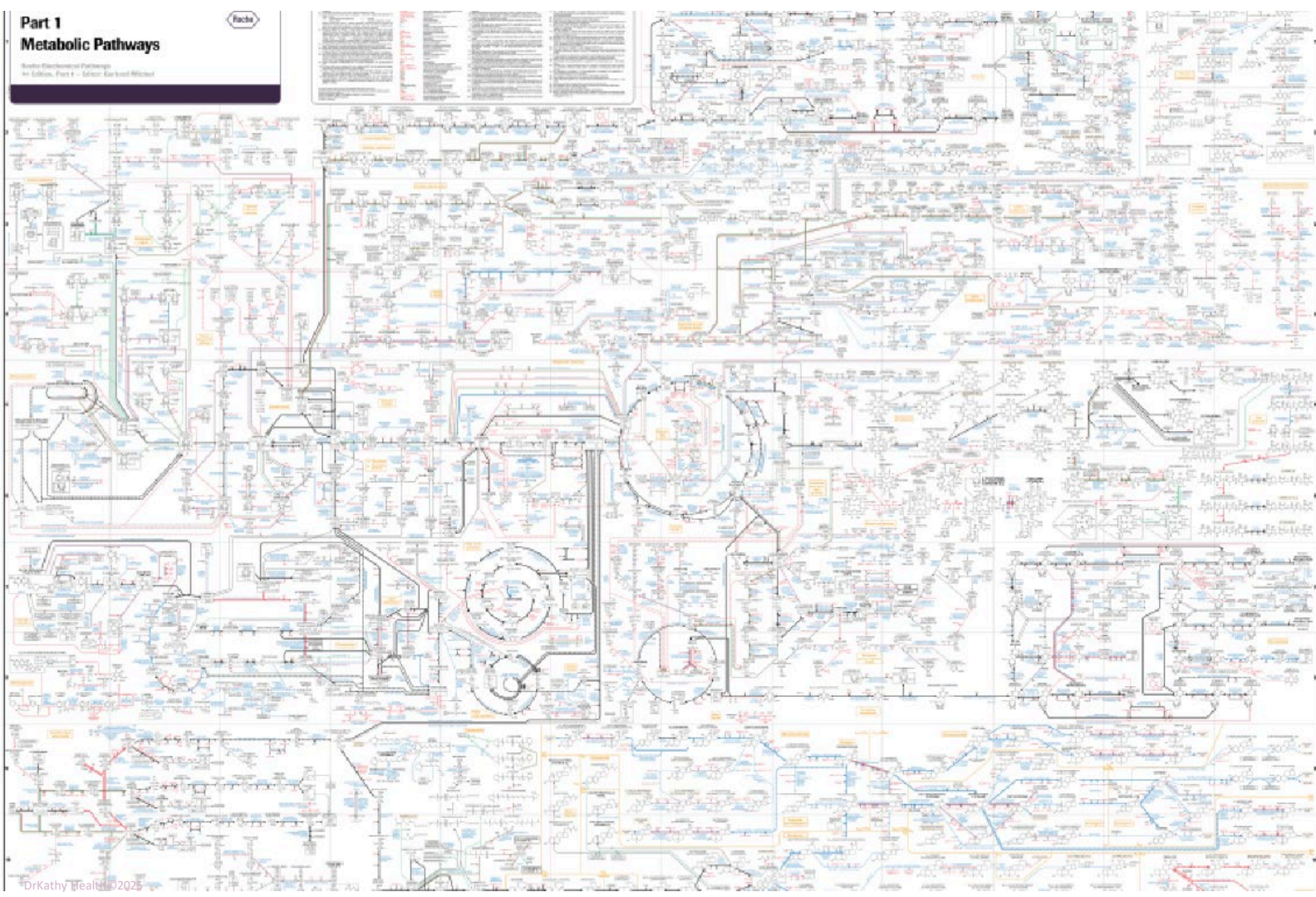
In addition to modern pharmaceuticals, the wellness pharmacist assists patients in selecting, managing, understanding and optimizing all chemistries, and therapeutic interventions, including but not limited to botanical, nutritional, supplemental, and lifestyle therapies.

**How do you help
patients in not needing
medications??**

Part 1
Metabolic Pathways

Student Encyclopedia of Pathways
1st Edition, Part 1 - Author: Barbara Mitchell

Index





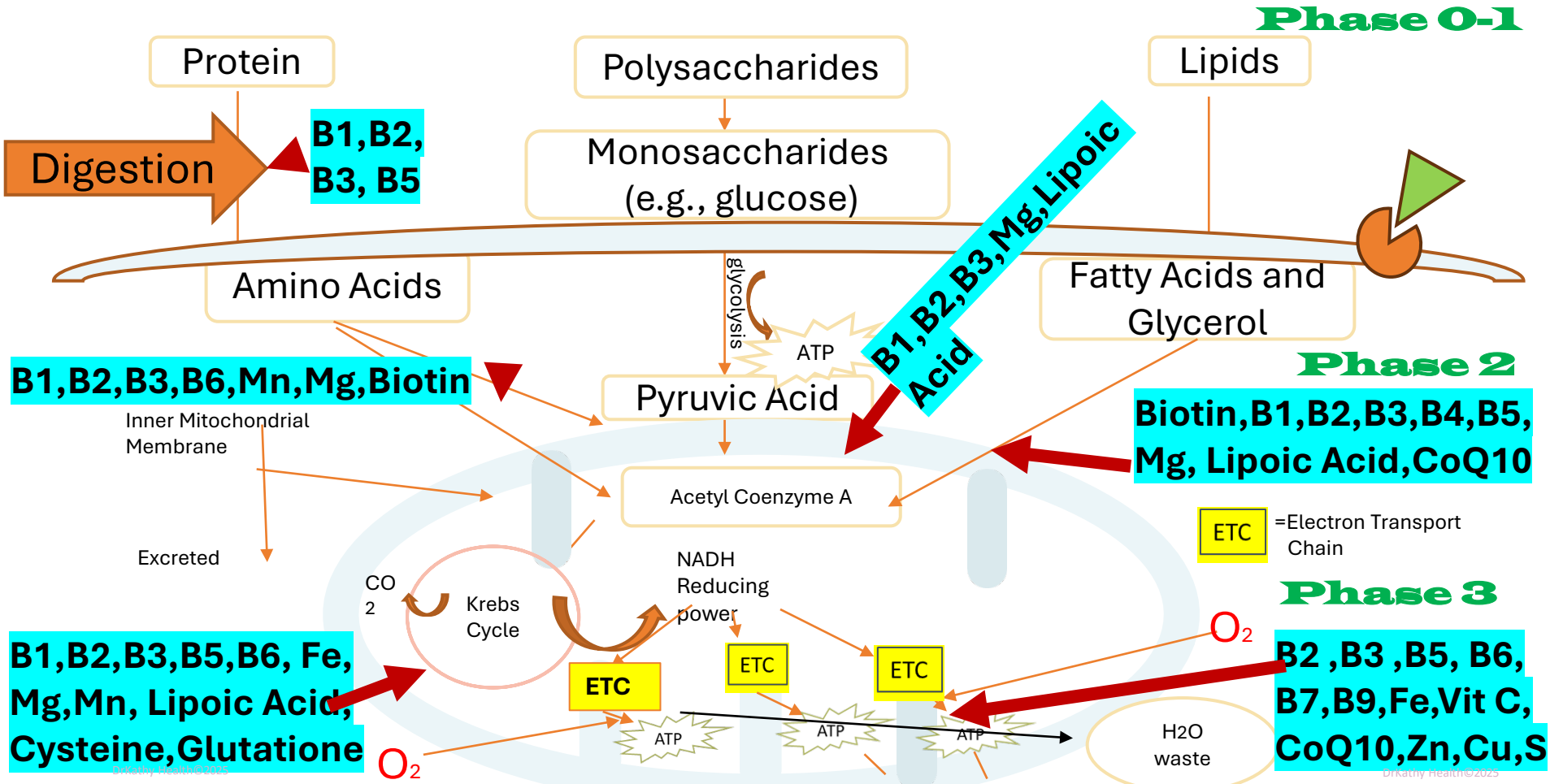
Metabolism refers to the whole sum of reactions that occur throughout the body within each cell and that provide the body with energy.

NUTRIENTS

Foods or liquids that supply the body with the chemicals necessary for metabolism.



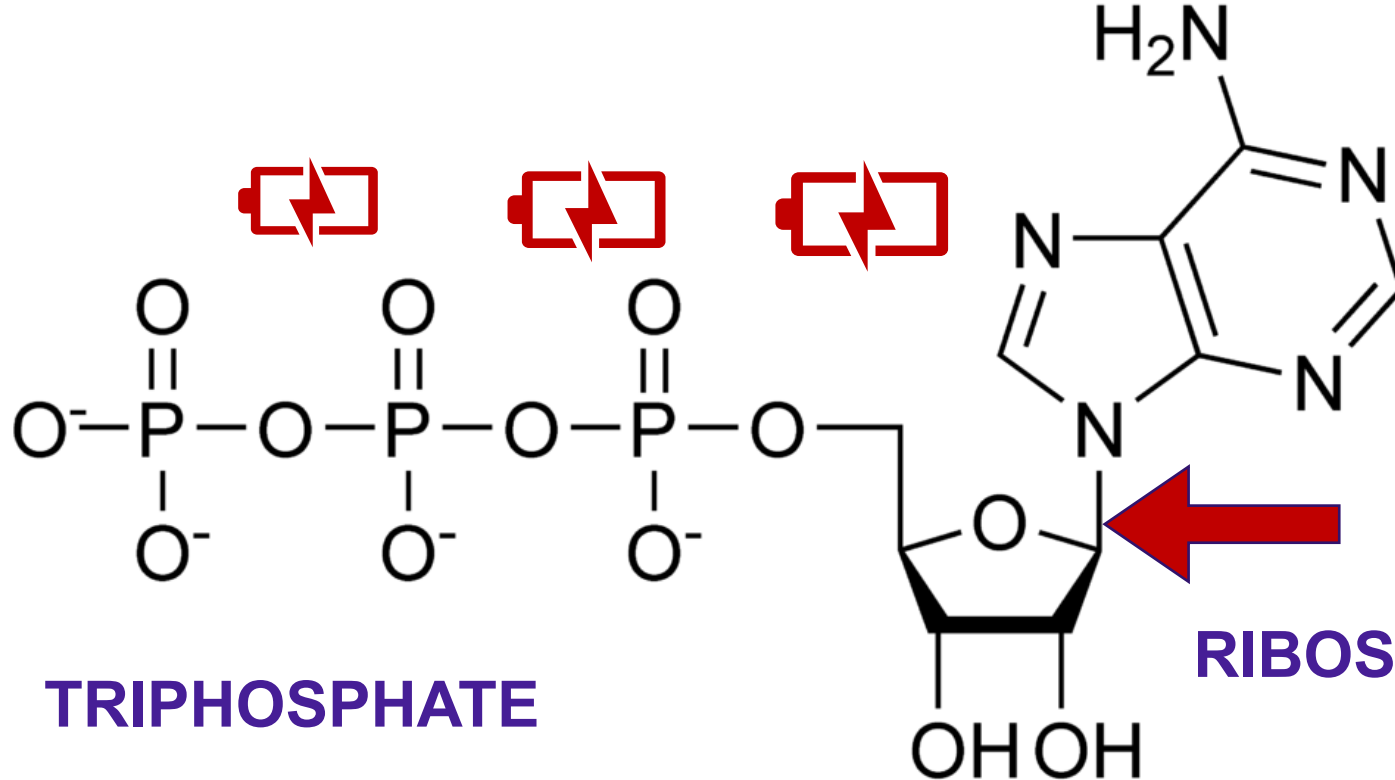
Mitochondrial energy production (from food)



Bioenergetics

ATP-ADENOSINE TRIPHOSPHATE

ADENINE



TRIPHOSPHATE

RIBOSE

LIFE

NUTRIENT DEFICIENCY

An inadequate supply of nutrients from a **lack of consumption or absorption** resulting in malnutrition or disease



The sub-clinical stages of marginal micronutrient deficiency

STAGE	ETIOLOGY	EVIDENCE
STAGE 1	Depletion of vitamin stores	Measurement of vitamin/mineral levels in blood or tissues
STAGE 2	Non-specific biochemical adaptation	Decreased excretion of metabolites in the urine
STAGE 3	Secretion of micronutrient dependent enzymes or hormones reduced	First physical signs; lack of energy, malaise, loss of appetite, insomnia
STAGE 4	Reversible impairment of metabolic pathways and cellular function	Morphological, metabolic or functional disturbances
STAGE 5	Irreversible tissue damage	Clinical signs of micronutrient deficiency
Concept of borderline vitamin deficiencies, IntJ Vitam Nutr Res Suppl, 1985;27:61-73.		

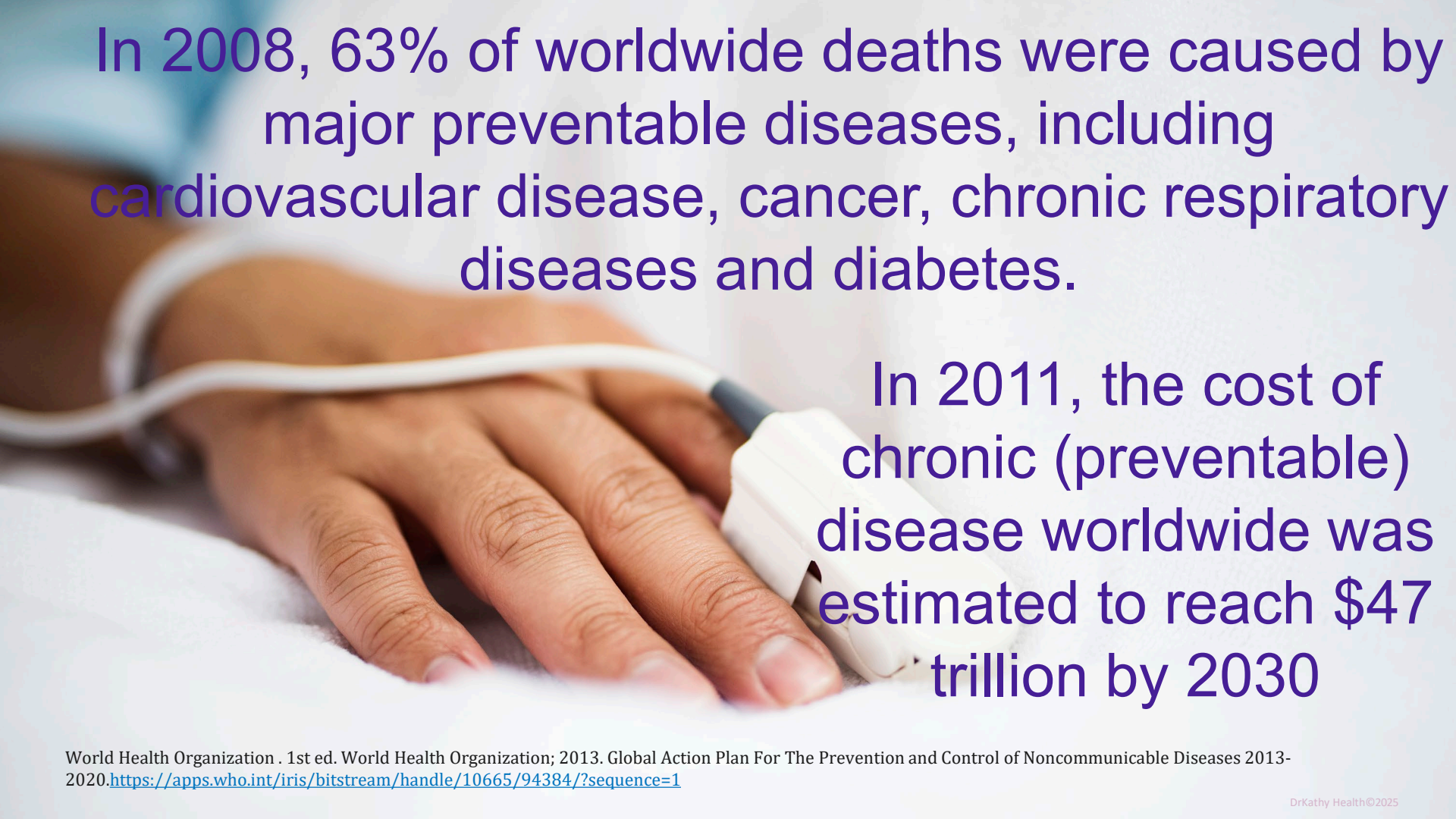
PROACTIVE

REACTIVE

**SEVERE
DYSFUNCTION**

**ACUTE
DIAGNOSIS
DISEASE ONSET &
PROGRESSION**

OBESITY: The Modern Famine



In 2008, 63% of worldwide deaths were caused by major preventable diseases, including cardiovascular disease, cancer, chronic respiratory diseases and diabetes.


In 2011, the cost of chronic (preventable) disease worldwide was estimated to reach \$47 trillion by 2030

“The major risk factors for all of the aforementioned chronic diseases are intimately connected to lifestyle(cultural) changes. Healthy eating, physical activity, smoking cessation, and alcohol reduction require individual action and lifestyle changes. The role of medical professionals (WELLNESS PHARMACISTS) in supporting these lifestyle behavior changes cannot be underestimated and is an important adjunct to treatment.”

Lifestyle-the habits, attitudes, tastes, moral standards, economic level, etc., that together constitute the mode of living of an individual or group.

Lifestyle Interventions are non-pharmacological interventions revolving around behavioral changes towards the adoption of new habits, usually aiming for a positive impact on quality of life.




A petri dish with a yellow liquid culture medium and its lid. The dish is partially open, showing the yellow liquid inside. The lid is placed to the right of the dish.

Culture (verb) to maintain
(tissue cells, bacteria, etc.)
in conditions suitable for
growth.

Oxford Dictionary/Bing

TEDx University of Tulsa



“We live in a culture that reliably produces disease, reliably produces obesity. We live in a culture that **blames the individual for being obese**, while at the same time making it almost impossible to be any other way.”

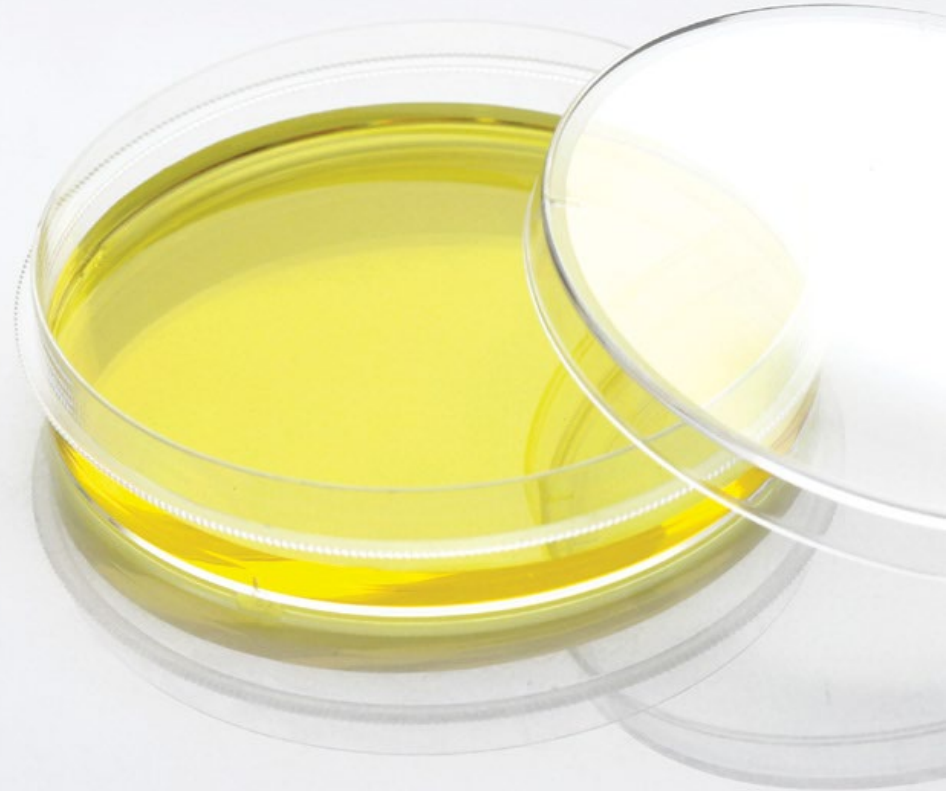
Kathy M. Campbell, PharmD
TEDx Tulsa 2018

CULTURAL DIET

“Here we introduce a machine learning algorithm that accurately predicts the degree of processing for any food, indicating that over **73%** of the US food supply is ultra-processed.”

ThoughtSpot

Menichetti G, Ravandi B, Mozaffarian D, Barabási AL. Machine learning prediction of the degree of food processing. Nat Commun. 2023 Apr 21;14(1):2312. doi: 10.1038/s41467-023-37457-1. PMID: 37085506; PMCID: PMC10121643.



**Summary**

Higher dietary exposure to ultra-processed foods was associated with a higher risk of adverse health outcomes in 32 out of 45 pooled analyses (71%)

Study design

Umbrella review

14 meta-analysis studies; 45 pooled analyses
Ultra-processed foods; defined by the Nova classification

Population

9 888 373 participants included; irrespective of health status and age

Outcomes

See full paper for more parameters, including those with no evidence

Mortality Cancer Cardiovascular health Gastrointestinal health
Mental health outcomes Respiratory health Metabolic health

Evidence quality	Evidence credibility			
	Convincing	Highly suggestive	Suggestive	Weak
Moderate	Type 2 diabetes		All cause mortality	Overweight + obesity
Low	Adverse sleep Anxiety Combined common mental disorders	Obesity All cause mortality Heart disease related mortality Depression Wheezing	CVD* events combined† CVD* morbidity	CVD* related mortality Colorectal cancer Crohn's disease
Very low	CVD* related mortality	Type 2 diabetes	Abdominal obesity Overweight Cancer overall Colorectal cancer Hypertension	Low high density lipoprotein concentration Metabolic syndrome Non-alcoholic fatty liver disease

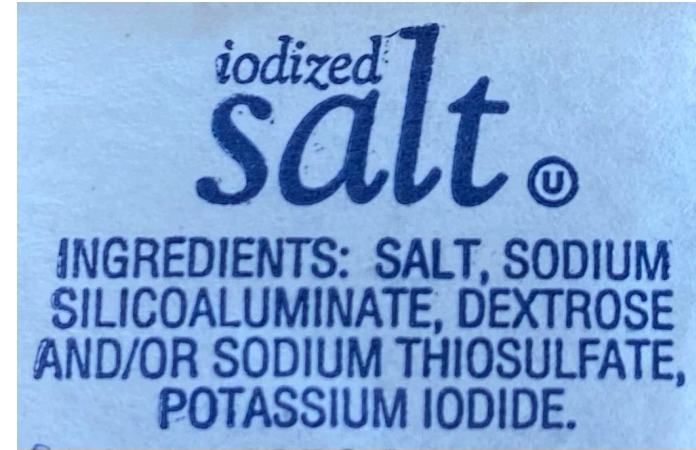
TOXIC and DEFICIENT

“Greater exposure to ultra-processed food was associated with a higher risk of adverse health outcomes, especially cardiometabolic, common mental disorder, and mortality outcomes.”

Lane M M, Gamage E, Du S, Ashtree D N, McGuinness A J, Gauci S et al. Ultra-processed food exposure and adverse health outcomes: umbrella review of epidemiological meta analyses *BMJ* 2024; 384 :e077310 doi:10.1136/bmj-2023-077310

Metabolically **Toxic** and **Deficient**

The Standard American Diet (Culture) lacks the necessary biochemistries sufficient to populate metabolic processes, while at the same time containing chemistries disruptive and toxic to metabolic processes.



**MUST GET THE FOOD AS RIGHT
AS POSSIBLE!!!!**



DRUG INDUCED NUTRIENT DEPLETION

Drug-induced nutrient depletion occurs when the medications we take for our chronic health conditions **deplete or block the absorption, storage, metabolism, or synthesis of nutrients in the body.**



Drug-Induced Nutrient Deficiency- Proton Pump Inhibitors PPI

- Mounting evidence indicate that several oral medications including antibiotics and PPIs unfavorably alter the gut microbiota; the resultant dysbiosis is implicated in the etiology and pathogenesis of obesity.
- The long-term use of PPIs is especially concerning due to numerous possible adverse side effects, including T2DM, dysbiosis, Clostridium difficult infection (CDI)-associated diarrhea, enteric infections, increased risk of community-acquired pneumonia, magnesium and vitamin B12 deficiency, osteoporosis, bone fractures and dementia.

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Burmeister MA, Smith TE, Fincher TK, Weldon AJ. Evidence for proton-pump inhibitor (PPI)-associated dysbiosis in metabolically unhealthy obesity. Front Endocrinol (Lausanne). 2023 Jun 15;14:1205490. doi: 10.3389/fendo.2023.1205490. PMID: 37396171; PMCID: PMC10308999.

Disease Related Nutrient Deficiencies

DIABETES

D, Mg

Bs, Fe

Metformin

Mg

B12, Bs

Statins

CoQ10

D, Fe, B, A, E, S

Dubey P, Thakur V, Chattopadhyay M. Role of Minerals and Trace Elements in Diabetes and Insulin Resistance. *Nutrients*. 2020 Jun 23;12(6):1864. doi: 10.3390/nu12061864. PMID: 32585827; PMCID: PMC7353202.

Mohn ES, Kern HJ, Saltzman E, Mitmesser SH, McKay DL. Evidence of Drug-Nutrient Interactions with Chronic Use of Commonly Prescribed Medications: An Update. *Pharmaceutics*. 2018 Mar 20;10(1):36. doi: 10.3390/pharmaceutics10010036. PMID: 29558445; PMCID: PMC5874849.



”as an adjunct to diet and exercise.”

Package insert

JNC 8 Hypertension Guideline Algorithm

Adult aged ≥ 18 years with HTN
Implement lifestyle modifications
Set BP goal, initiate BP-lowering medication based on algorithm

General Population
(no diabetes or CKD)

Diabetes or CKD present

Age ≥ 60 years

Age < 60 years

BP Goal
 $< 150/90$

BP Goal
 $< 140/90$

All Ages
Diabetes present
No CKD

All Ages and Races
CKD present with or
without diabetes

BP Goal
 $< 140/90$

BP Goal
 $< 140/90$

Nonblack

Black

Initiate thiazide, ACEI, ARB,
or CCB, alone or in combo

Initiate thiazide or CCB,
alone or combo

Initiate ACEI or ARB,
alone or combo
w/another class

At blood pressure goal?

Yes

No

Reinforce lifestyle and adherence

Titrate medications to maximum doses or consider adding another medication

At blood pressure goal?

Yes

No

Reinforce lifestyle and adherence

Add a medication class not already selected (i.e. beta blocker, aldosterone antagonist, or loop diuretic) to the above medications to max (see back of card)

At blood pressure goal?

Yes

No

Reinforce lifestyle and adherence

Titrate meds to maximum doses, add another med and/or refer to hypertension specialist

Continue tx and monitoring

Initial Drugs of Choice for Hypertension

- ACE inhibitor (ACEI)
- Angiotensin receptor blocker (ARB)
- Thiazide diuretic
- Calcium channel blocker (CCB)

Strategy	Description
A	Start one drug and titrate to maximum dose, and then add a second drug.
B	Start one drug and add a second drug before reaching max dose of first
C	Begin 2 drugs at the same time, as separate pills or combination pill. Initial combination therapy is recommended if greater than 20/10mm Hg above goal

Lifestyle changes:

- Smoking Cessation
- Control blood glucose and lipids
- Diet
 - ✓ Eat healthy (i.e., DASH diet)
 - ✓ Moderate alcohol consumption
 - ✓ Reduce sodium intake to no more than 2,400 mg/day
- Physical activity
 - ✓ Moderate-to-vigorous activity 3-4 days a week averaging 40 min per session.

Lifestyle modification strategies as first line of chronic disease management.

Oh S, Kim E, Shoda J. Front Physiol. 2023 May 10;14:1204581. doi:10.3389/fphys.2023.1204581. PMID: 37234423; PMCID: PMC10206390.

James PA, Ortiz E, et al. 2014 evidence-based guideline for the management of high blood pressure in adults: (JNC8). JAMA. 2014 Feb 5;311(5):507-20

Card developed by Cole Glenn, Pharm.D. & James L Taylor, Pharm.D.

RECOMMENDATIONS YOU SHOULD BE MAKING

Plant-focused, low glycemic Mediterranean eating approach

Low-Processed food intake

Low toxin, high-fiber intake (detox)

Half of body weight in ounces of water

Daily movement

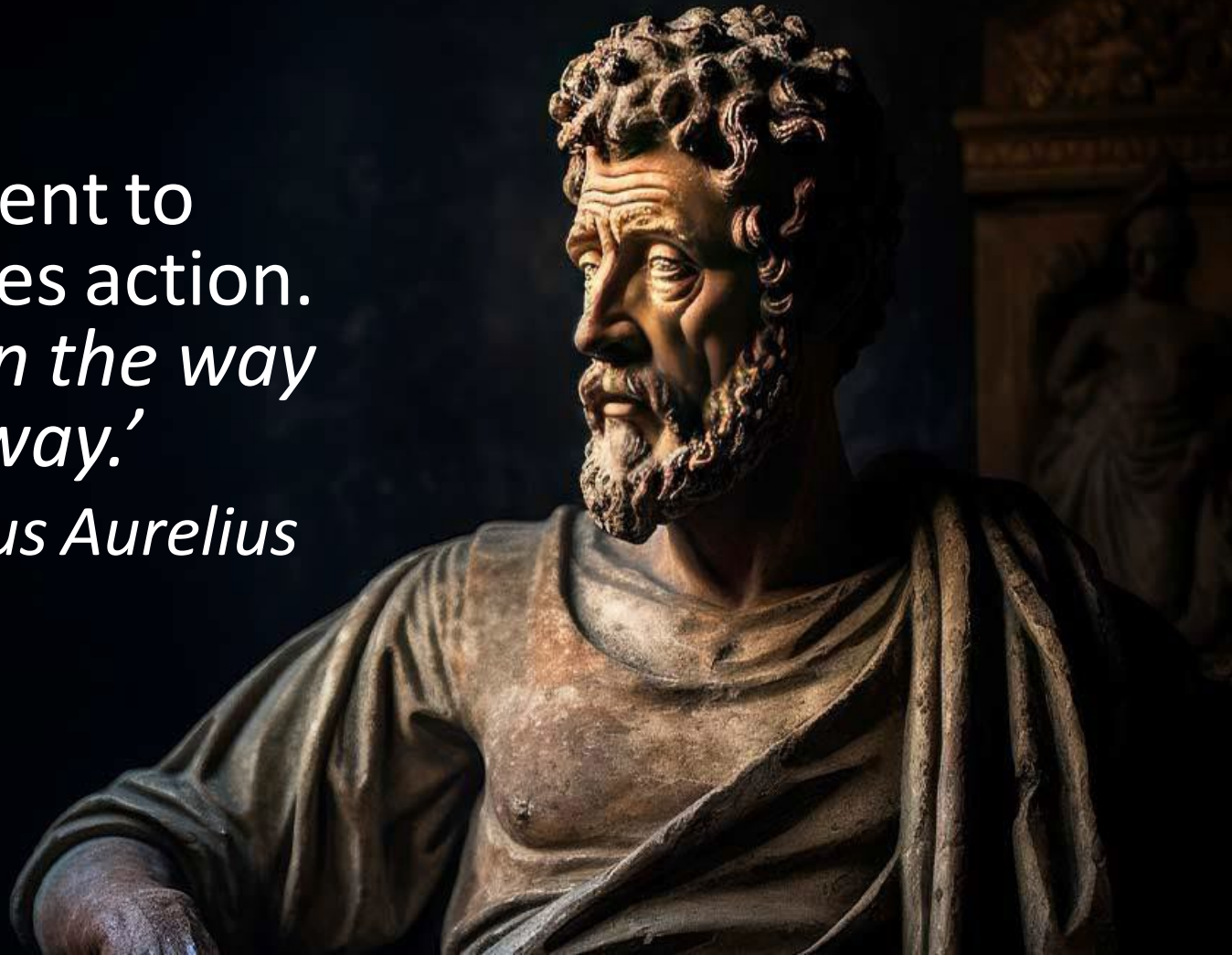
Drug induced nutrient deficiency correction

Foundational nutrient support



‘The impediment to
action advances action.
*What stands in the way
becomes the way.*’

-Marcus Aurelius





*You cannot be the
same, think the same
and act the same if you
hope to be successful in
a world that does not
remain the same.*

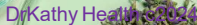
Unknown

In order to survive, evolve
and thrive, we (patients and
providers) **MUST** be willing to
be and do something
different.

Selling Health

Assisting consumers in proactively having and maintaining optimal physical behavioral, cognitive and metabolic function in exchange for money





- **MUST identify, curate, market and sell consumer demanded margin-producing products & services.**
- **MUST define & articulate wellness identity (value prop) to **staff** and consumers.**
- **MUST MARKET to consumers that you can solve their problems.**

**Engage.
Embrace.
Educate.
Empathize.
Empower.**

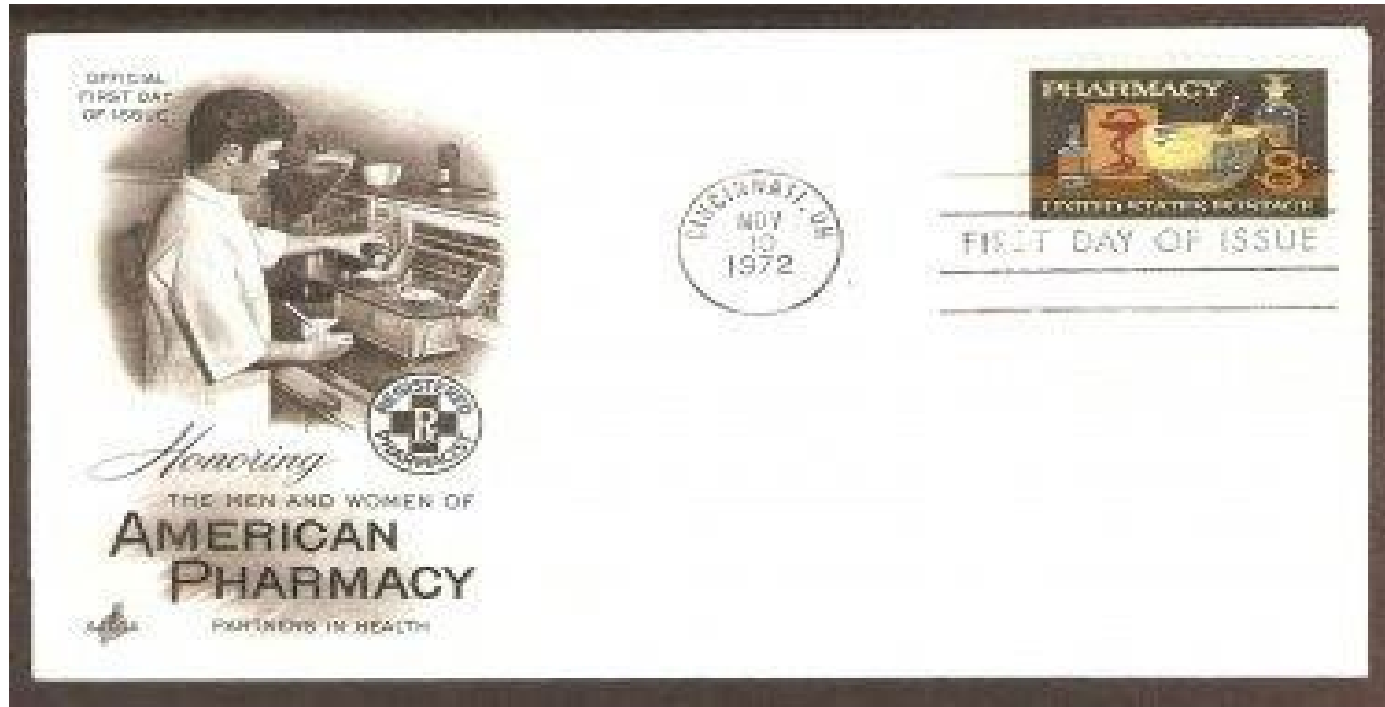
**The Wellness Pharmacist
actively assists patients in
'not needing' medications
and we must tell the world
we do this.**

ThoughtSpot



PARTNERxS IN HEALTH

“Doctors tell us to do these things, but no one actually helps us do it.” DrKathy Patient



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