GUT INSTINCTS

Dr. Heather Finley

PART 1: DIGESTION AND ABSORPTION

ABOUT ME

Dr. Heather Finley

REGISTERED DIETITIAN

Experience in clinical settings, outpatient treatment and now virtual private practice

GUT HEALTH EXPERT

Focused my doctorate training on gut-related research and have my own personal experience with 20+ years of digestive issues

TODAY'S TOPICS

1

DIGESTION AND ABSORPTION

2

DYSBIOSIS

3

IBS AND EATING DISORDERS

Digestive Tract

- Series of organs joined in a long winding path from your mouth to your anus
- Hollow organs that transport and process food (stomach, small intestine, large intestine)
- Solid organs that aid in breaking it down (liver, pancreas, gallbladder)

DIGESTIVE PROCESS

01

Digestion starts in the mouth with chewing
MECHANICAL DIGESTION

02

Food enters the stomach
Stomach acid and enzymes break down food and protein

03

Small Intestine for absorption
Small intestine absorbs MOST of the nutrients from food

04

Assilmilation and excretion
Digested nutrients are transported through the body
Excretion: waste is excreted out of the body

KEY PLAYERS

Mouth

Vagus Nerve

Stomach

Pancreas

Liver

Gallbladder

Small intestine/ small bowel

Large Intestine

Mouth

My function:

FIRST STOP IN THE DIGESTIVE PROCESS

CHEWING MASHES FOOD FOR EASIER DIGESTION LATER ON

DIGESTIVE ENZYMES LIKE AMYLASE IN SALIVA START BREAKING DOWN FOOD

EATING SPEED IMPACTS DIGESTION

CHEWING IMPACTS DIGESTION

IN TERMS OF AN EATING DISORDER, THIS PORTION CAN BE CHALLENGING FOR CLIENTS

Vagus Nerve

My function:

SUPERHIGHWAY BETWEEN THE BRAIN AND THE GUT

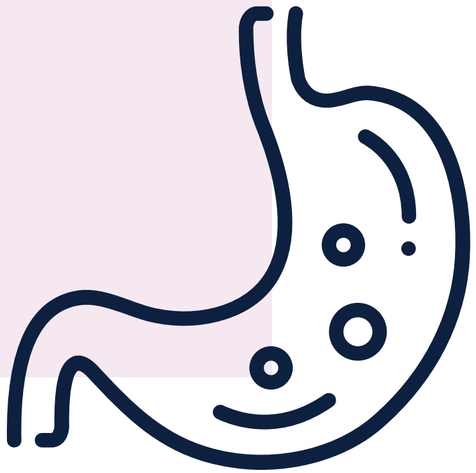
DICTATES "REST AND DIGEST MODE" OR "FIGHT OR FLIGHT" MODE

TELLS THE MUSCLES OF THE STOMACH TO CONTRACT

HELPS PUSH FOOD INTO THE SMALL INTESTINE

STIMULATION OF VAGUS NERVE HELPS WITH GUT MOTILITY

CAN STIMULATE WITH GARGLING, HUMMING, SINGING



Stomach
My function:

HCL AND PEPTIC ENZYMES SOFTEN HARD VEGETABLE SKIN AND PROTEIN

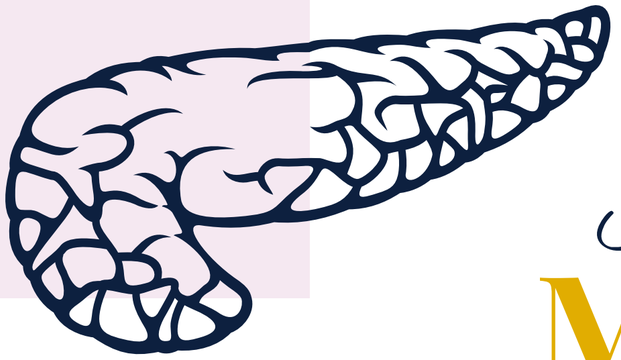
KILLING OFF BACTERIA THAT ENTERED THROUGH THE NOSE OR MOUTH

TAKES 1-5 HOURS FOR A MEDIUM SIZED DINNER TO GET DIGESTED

DIGESTION THEN EMPTIES FOOD INTO SMALL INTESTINE

LOW STOMACH ACID IS COMMON WITH DISORDERED EATING

LOW STOMACH ACID CAN LEAD TO FEELING VERY FULL, OR LIKE FOOD SITS IN THE STOMACH LIKE A BRICK



Pancreas

My function:

MAIN WORKHORSES FOR PRODUCING DIGESTIVE ENZYMES

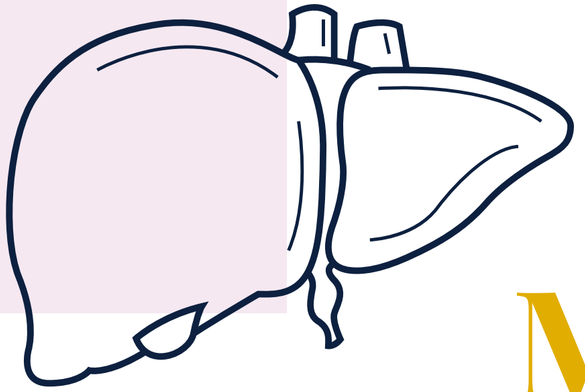
DIGESTIVE ENZYMES BREAK DOWN CARBOHYDRATES, PROTEINS AND FATS

HORMONES RESPONSIBLE FOR BLOOD SUGAR BALANCE

LIPASE: DIGESTS FATS

PROTEASE: DIGESTS PROTEINS

AMYLASE: DIGESTS CARBOHYDRATES



liver

My function:

FILTERS BLOOD AND REMOVES TOXINS

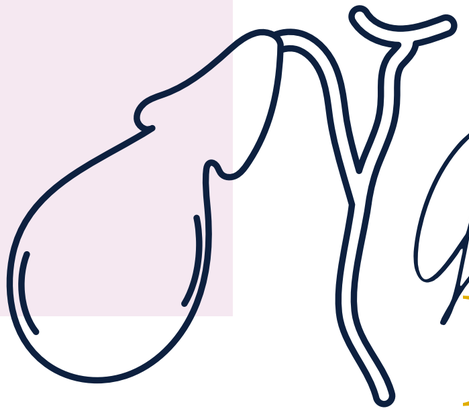
METABOLIZES DRUGS, REGULATES HORMONES

SYNTHESIZING BILE FOR DELIVERY TO THE GALLBLADDER

BILE IS NEEDED FOR DIGESTING FAT

PROCESSES NUTRIENTS FROM SMALL INTESTINE

PERFORMS OVER 500 FUNCTIONS IN THE BODY



Gallbladder
My function:

SITS JUST UNDER THE LIVER

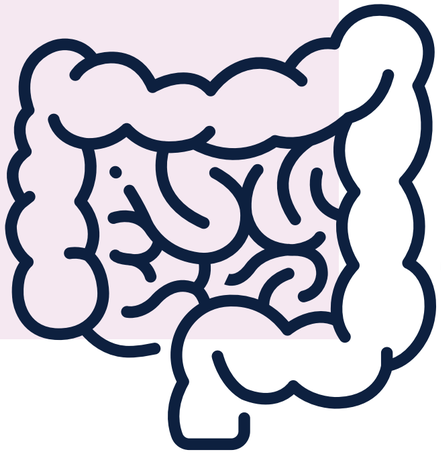
DELIVERS BILE TO THE SMALL INTESTINE

RECEIVES BILE FROM THE LIVER

BILE IS NEEDED FOR DIGESTING FAT

WITHOUT A GALLBLADDER THIS CAN IMPACT FAT DIGESITON

THERE IS A HIGHER INCIDENCE OF SIBO WITH GALLBLADDER REMOVAL



Small Intestine
My function:

LONGEST LEG OF THE DIGESTION PROCESS

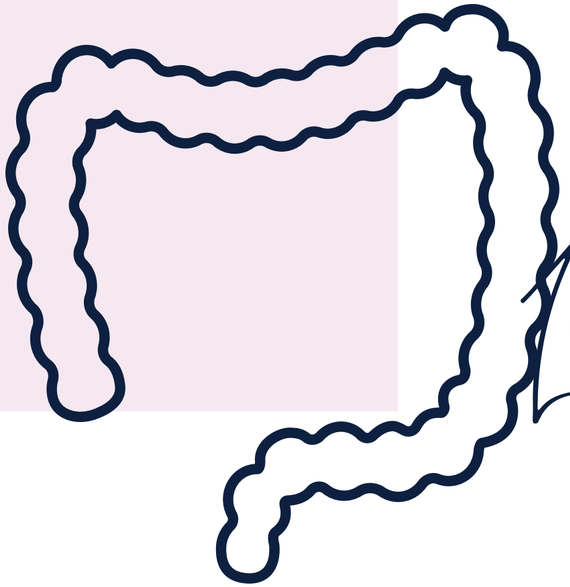
20 FEET OF INTESTINES

MAJOR FOOD GROUPS ARE BROKEN DOWN

AFTER DIGESTION WE GET: AMINO ACIDS, SUGARS AND FATTY ACIDS

AMINO ACIDS, SUGARS AND FATTY ACIDS ARE ABSORBED INTO THE BLOODSTREAM

TAKES 2-4 HOURS FOR A MEAL TO BE PROCESSED IN THE SMALL INTESTINES



Large Intestine

My function:

FIVE FEET LONG

WATER IS ABSORBED FROM REMAINING FOOD MATTER

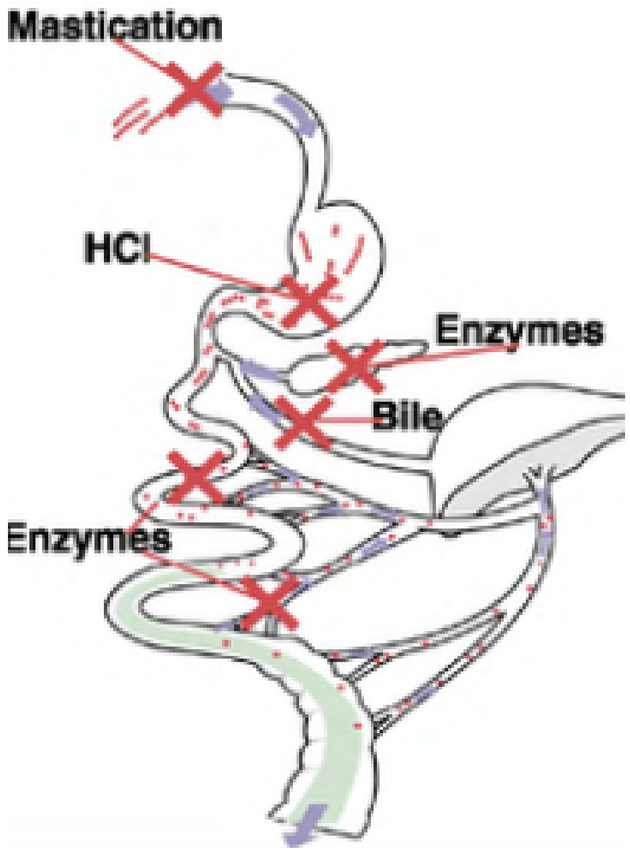
EXCESS WASTE IS REMOVED FROM THE BODY

MAJORITY OF OUR GUT BACTERIA LIVES HERE! 2-5 POUNDS WORTH

THESE BACTERIA FEAST OFF UNDIGESTED FIBERS

THESE FIBERS PRODUCE POST-BIOTICS (SHORT CHAIN FATTY ACIDS) LIKE BUTYRATE

REASONS FOR POOR DIGESTION



01
Improper chewing

02
Low stomach acid (HCL)

03
Poor pancreatic enzyme output

04
Bile insufficiency

THE MICROBIOME

100 TRILLION CELLS OF BACTERIA

Line the mucosal membranes of mouth, skin and gut (2-5 pounds of bacteria)

NEUROTRANSMITTERS

Healthy microbiome=ample amounts of neurotransmitters (serotonin, GABA, etc)

PSYCHOBIOTICS

Bacteria that impact the brain are called "psychobiotics"

FROM BIRTH

Microbiome starts to develop from the moment you are born

Dysbiosis

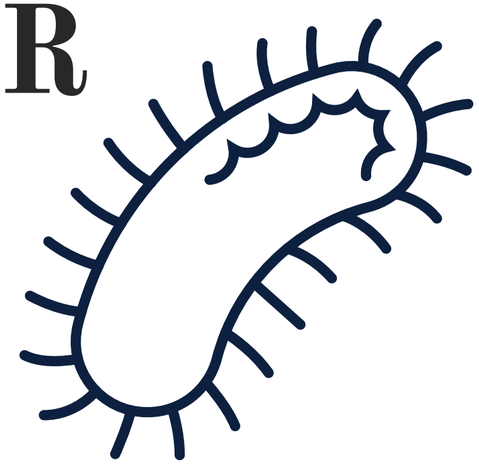
WHEN "BAD" OR PATHOGENIC STRAINS OF BACTERIA TAKE OVER

Too many "bad" guys and not enough "good" guys

WHAT FUELS THIS?

Stress, drug interactions, low fiber diet, restricted diet, lack of exercise, too much exercise, antibiotics, alcohol, birth control, route of birth and more!

WHY BACTERIA MATTER

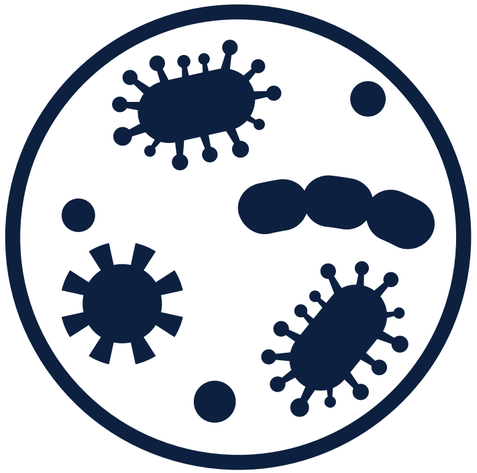


01

Reduces inflammation in the body

02

Regulates immune and digestive function



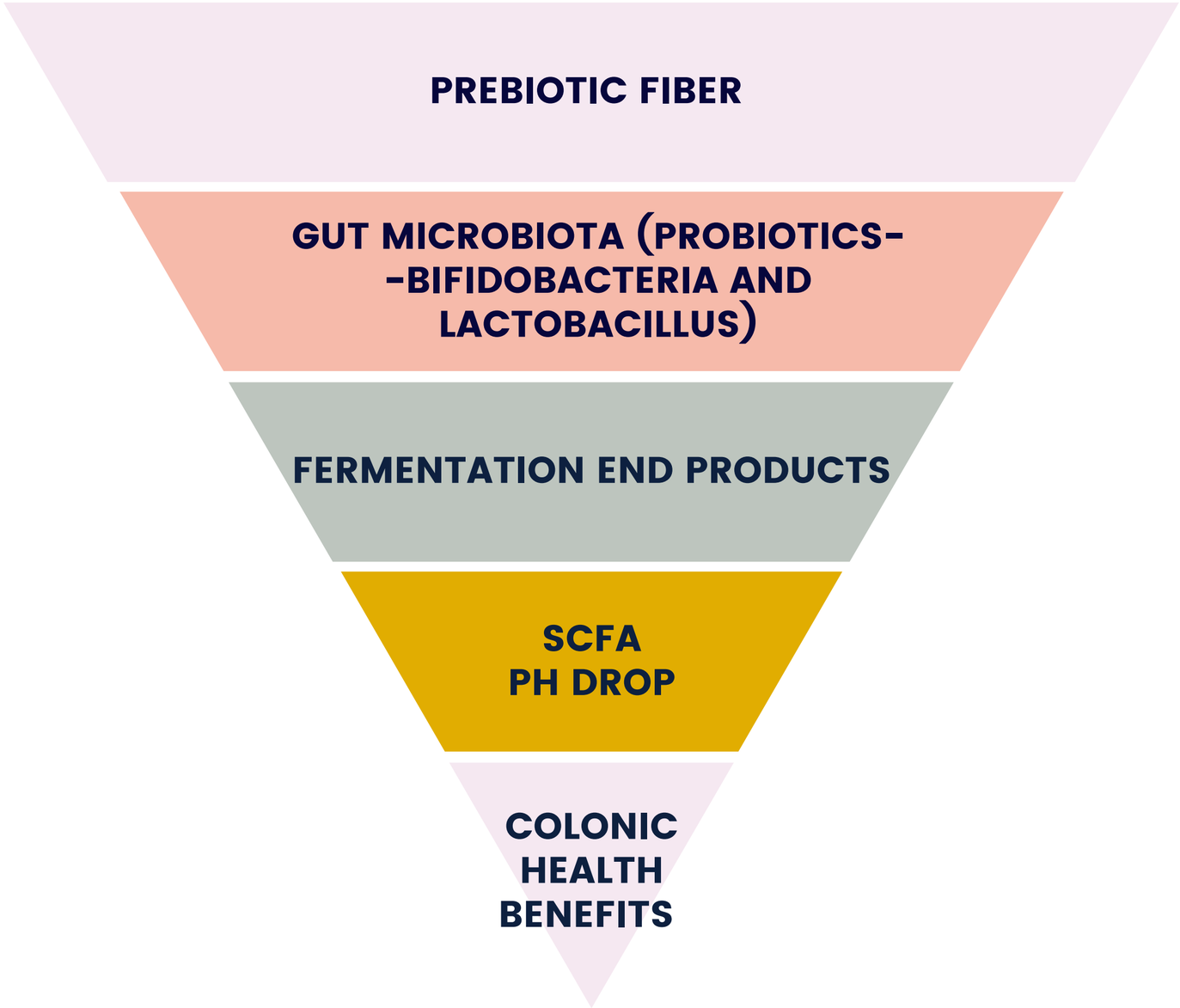
03

Enhance nutrient absorption

04

Produces serotonin and other mood stabilizers

WHY BACTERIA MATTER



MIGRATING MOTOR COMPLEX

small intestines "dishwasher"	clears out undigested food in the GI tract
MMC kicks in after 3+ hours	noisy gurgling feeling
MMC needs to clean multiple times a day	impacts constipation and gut function

MMC MALFUNCTION

stress	lack of sleep
grazing	gut-brain connection
pain medication/opioids	food poisoning

Functions of HCL

- PEPSINOGEN TO PEPSIN
- KILLS BACTERIA
- INCREASES ABSORPTION OF CALCIUM, IRON, ZINC, MAGNESIUM AND COPPER
- DECREASES RISK OF OSTEOPOROSIS
- IMPORTANT FOR B12 ABSORPTION
- ADEQUATE THYROID HORMONE NEEDED FOR PRODUCTION
- HOW MANY OF YOUR CLIENTS HAVE REFLUX?
- MOST OFTEN CLIENTS HAVE LOW ACID, NOT HIGH!

Low stomach acid signs

- [ ] WEAK, PEELING FINGERS
- [ ] FOOD SITS IN YOUR STOMACH LIKE A BRICK
- [ ] IRON DEFICIENCY
- [ ] UNDIGESTED FOOD IN STOOL
- [ ] CHRONIC INTESTINAL INFECTIONS
- [ ] BLOATING RIGHT AFTER EATING
- [ ] FLATULENCE AND GAS
- [ ] DILATED CAPILARIES IN FACE
- [ ] BURPING RIGHT AFTER MEALS

Causes of low stomach acid

- PPI'S OR H2 BLOCKERS
- AGING
- AUTOIMMUNE DISEASE
- HYPOTHYROIDISM
- STRESS!
- FASTING
- VIRAL INFECTION
- BACTERIAL INFECTION
- H PYLORI INFECTION

Consequences of low stomach acid

- SIBO
- DYSBIOSIS
- MINERAL DEFICIENCIES
- B12 DEFICIENCY
- POOR DIGESTION
- RISK FOR FOOD POISIONING
- HIGHER AMOUNTS OF GAS
- CONSTIPATION
- BLOAT
- REFLUX

Intestine's primary function

01 Absorb nutrients and water

02 House gut bacteria (approximately 2-5 pounds)

03 Neurotransmitter production

04 Electrolyte stability

Metabolic End Products

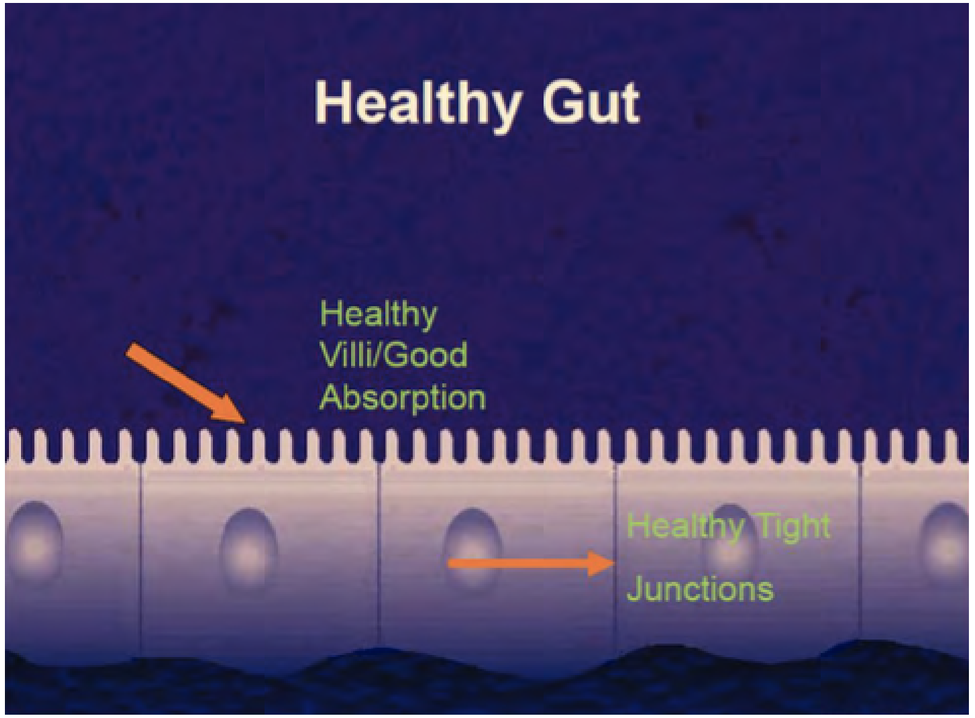
SYMPATHETIC NERVOUS SYSTEM SUPPORT

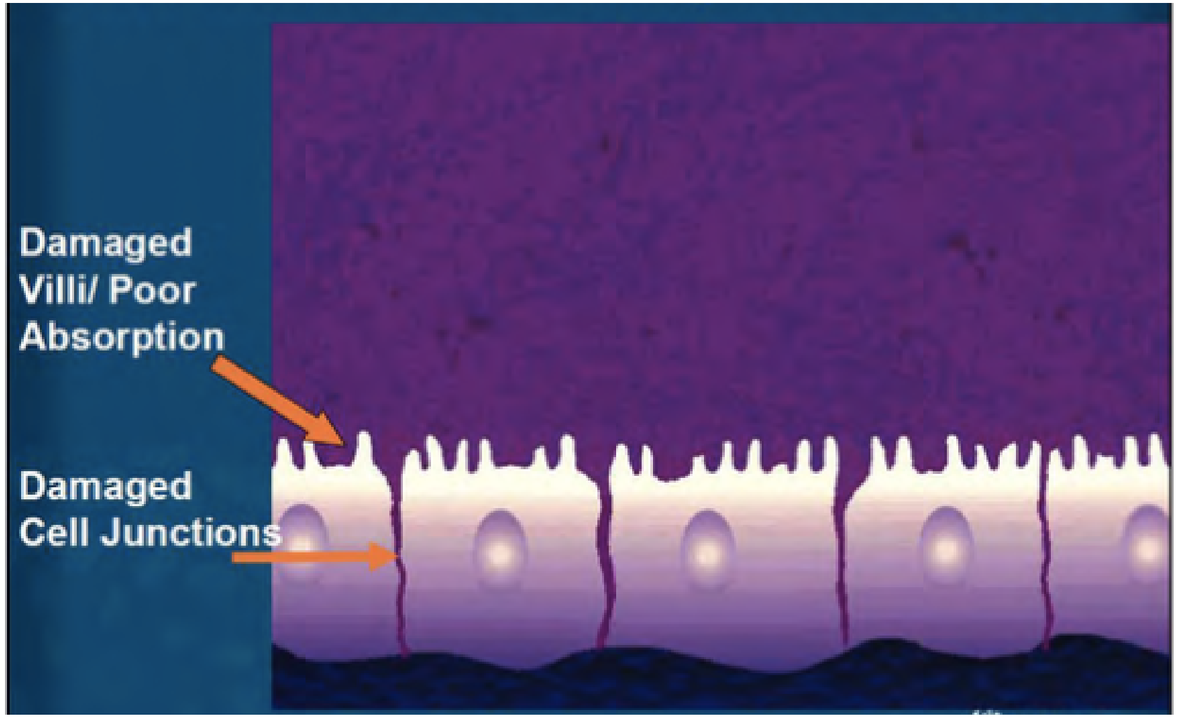
Decrease stress and anxiety

Support neurotransmitter release and
serotonin recreation

FUNCTIONAL BRAIN CHANGES

These end products have a huge say in mental health!


Healthy Gut
Healthy
Villi/Good
Absorption
Healthy Tight
Junctions


Damaged
Villi/ Poor
Absorption
Damaged
Cell Junctions

Constipation

TOP CAUSES

Dehydration

Decreased dietary diversity

Too little fiber or too much

Lack of omega 3's

Poor motility

Stress

Overexercise

Gas

TOP CAUSES

Constipation

Decreased dietary diversity

Too much fiber

Dysbiosis

Poor motility

Bloat

TOP CAUSES

Constipation

Low stomach acid

Too much fiber

Dysbiosis

Poor motility

Stress

Diarrhea

TOP CAUSES

Is it overflow?

STRESS

Sugar alcohols from "diet" products

Dysbiosis

Too little fiber

Dehydration

DIGESTION SUMMARY

01

Digestion begins when food enters the mouth by enzymes and bacteria in saliva

02

Food is denatured by HCL, enzymes and microbes in the small/large intestines

03

Metabolic end products (like butyrate) in the presence of probiotics are SCFA

04

SCFA lower the pH of the intestines, balance sympathetic nervous system and support neurotransmitters

THESE END PRODUCTS HAVE A HUGE SAY IN MENTAL HEALTH!

HOW DOES THIS APPLY TO EATING DISORDER PATIENTS

01
Food is stressful and stress impacts digestion

02
Poor digestion can lead to unwanted digestive symptoms

03
Unwanted symptoms can cause a vicious cycle with your patients

04
Clients tend to avoid carbohydrate foods which feed gut bacteria

WE HAVE TO CONSIDER THE GUT-BRAIN CONNECTION WHEN TREATING PATIENTS WITH EATING DISORDERS

NEXT UP: February 25, 2021
12:00pm MST

Gut Instincts Part 2: The gut-brain axis and communication pathways

Questions

Until next time....find me on
Instagram @gutbrain.nutrition