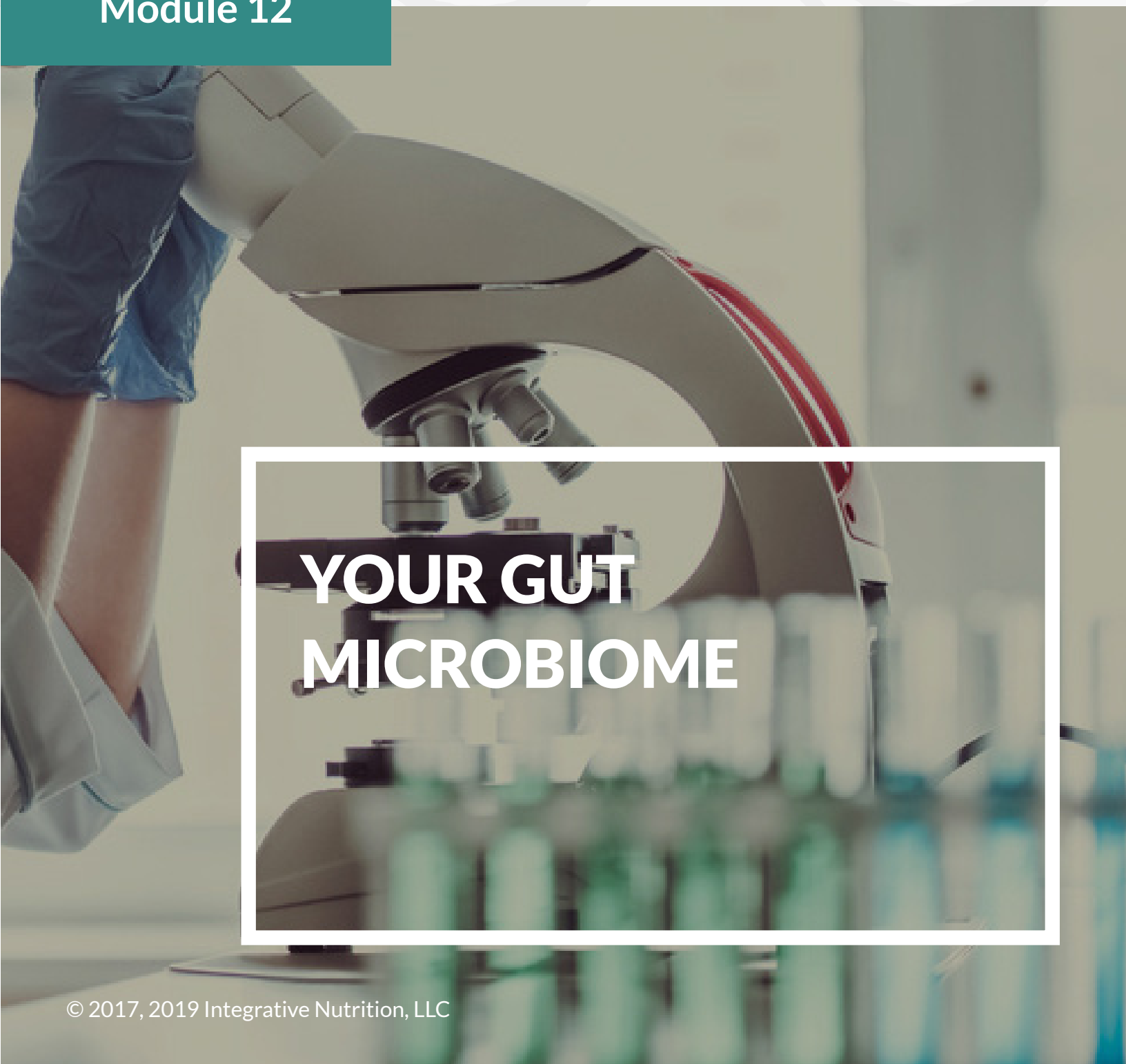
Module 12



YOUR GUT MICROBIOME

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WHAT IS IT?

One of the most interesting areas of recent nutrition research focuses on the gut – more specifically, the types of microorganisms that are present in the gut. These tiny organisms have a major effect on overall health and have already been implicated in a variety of conditions, including everything from gastrointestinal disorders to cardiovascular disease to asthma.[1]

The gut microbiome refers to the billions of live bacteria humans have in the gut, but it also includes things like fungi and viruses. It's estimated that the gut contains approximately 35,000 different strains of bacteria.[2] The majority are found in the large intestine, particularly the colon, but bacteria can also be found in the esophagus, stomach, and small intestine.

The gut refers to the place where food is digested, metabolized, and absorbed to be delivered into the cells and provide the body with energy. It is essential in allowing for the removal of waste – this process of breaking down food creates bioactive compounds that either help support health or lead to inflammation, increasing the risk for disease.

WHAT DOES IT DO?

Our gut health has implications beyond simply healthy digestion; the state of our gut health may also regulate our mood (through serotonin production), immune response, and predisposition to weight gain.

The total surface area of our gut is approximately the size of half a badminton court or the size of a small studio apartment – this is why diet has such a profound impact on health.[3] The integrity of the gut lining can become compromised if it's constantly being exposed to irritants through the diet or environment. In turn, this causes chronic low-level inflammation and is another example of how compromised gut health can lead to a variety of disorders.[4]

WHAT AFFECTS IT?

The gut microbiome is affected by a variety of factors.

Mode of delivery

Babies born via C-section are exposed to different strains of bacteria as compared to babies born vaginally.

Diet during infancy

Breastfed infants are exposed to more beneficial bacteria from their mothers than formula-fed babies. Interestingly, breastmilk microbiota can vary widely, depending on the mother's health, BMI, antibiotic use, and diet.

Diet during adulthood

Diet has a profound impact on the types of bacteria that thrive. Even a brief dietary change has been shown to alter the gut microbiota.[5] Organisms that support the breakdown of foods you normally consume flourish, while others perish. Diets that are plant-based are especially supportive of the beneficial organisms in the gut.[6]

Antibiotics

Antibiotics work by killing bacteria – this is effective when you're sick and need help ridding yourself of bad bacteria, but in accomplishing this, they also tend to destroy the good bacteria. Even one dose of a commonly prescribed antibiotic can wipe out microbial diversity for up to one month.[7] Of course, antibiotics are necessary at times, but remember to give your gut a little extra love following such treatment.

Age

It takes up to three years for toddlers to colonize their gut microbiome similarly to that of an adult's. Microbial diversity may also decrease after age 75.[8]

Genetics

Although much of our gut health has to do with environmental factors, some aspects of the microbiome may actually be inherited.[9]

Stress

Even brief periods of stress have been shown to alter the gut microbiota.[10]

HOW CAN YOU SUPPORT IT?

You've probably heard about probiotics before – they're a great way to support gut health. But prebiotics are another important dietary factor. Both probiotics and prebiotics help support gut health in different ways.

Here's what you need to know!

- **Probiotics:**
  Bacteria consumed through the diet (or with supplements) that help support gut health. Common strains include bifidobacterium and lactobacillus.

  Food sources:
  Kefir, tempeh, kimchi, yogurt

  Benefits:[11, 12]

  - ✓ Reduced risk of depression, increased feelings of happiness
  - ✓ Reduced circulating cortisol (the stress hormone)
  - ✓ Reduced feelings of anxiety
  - ✓ Support healthy aging

- **Prebiotics:**
  Particular fiber sources that ferment in the gut, creating beneficial bioactive compounds.

  Food sources:
  Jerusalem artichokes, leeks, chicory root, onions, quinoa, amaranth

  Benefits:[13–15]

  - ✓ Reduced risk of obesity and overweight
  - ✓ Increased immune function
  - ✓ Support production of short-chain fatty acids, which increase absorption of calcium and help reduce oxidative stress
  - ✓ Support satiety and may support a healthy BMI

The Western diet is associated with dysbiosis, a disruption in the gut bacterial profile when the "bad" bacteria outnumbers the "good." A combination of probiotics and prebiotics as part of a whole foods diet can help achieve the right balance of gut bacteria to support health and reduce inflammation.

FOOTNOTES

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