

# SLEEP *at the* GUT LEVEL

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CAN WHAT YOU EAT LEAD  
TO BETTER SLEEP?



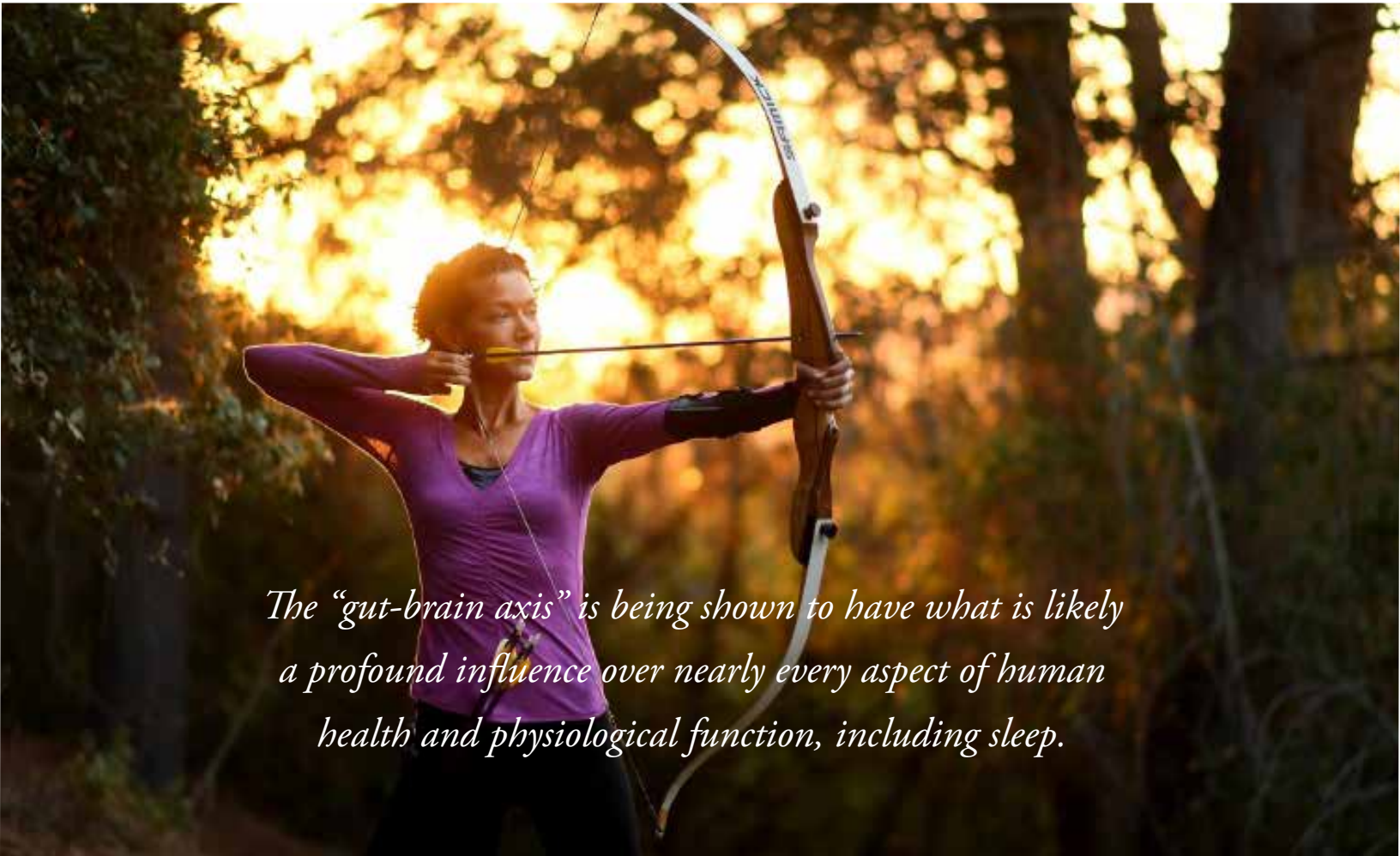
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## OUR BODIES HOUSE A “GUT LEVEL” CENTRAL NERVOUS SYSTEM

### *Understanding the gut- brain axis*

Did you know that in addition to the brain, our bodies house a second central nervous system in our digestive tract or gut? This system, part of our body’s microbiome, works in tandem with our brain to regulate many factors that contribute to our overall health, including sleep. How does the microbiome function, and how can we help it contribute to optimal physical and mental health?



*The “gut-brain axis” is being shown to have what is likely a profound influence over nearly every aspect of human health and physiological function, including sleep.*



At Golden Door Spa in Southern California, we empower guests to reposition themselves at the center of their own lives by tending to their bodies, minds and spirits. That focus includes nutritious food and beneficial exercise to keep our microbiome healthy and encourage quality, restful sleep.





## WHAT IS THE MICROBIOME?

*Each person has an entirely unique network of microbiota that is originally determined by one's DNA.*

Trillions of microorganisms (bacteria, viruses, protozoa and other organisms) live in a human body and may outnumber human cells by from 3:1 to 10:1 (studies aren't definitive). All of these microbial cells and their genetic elements make up the microbiome.

Researchers worldwide are working to better understand this little-known ecosystem that links closely with human health and disease. The initial search for answers kicked off with the Human Microbiome Project from 2007 to 2017, supported by the United States National Institutes of Health, to study five areas of the human body. Of those, the intestinal tract shows the highest concentration of microbes. Those gut microbes contain genetic elements that help regulate many bodily functions, such as appetite, mood, immunity, metabolism, hormones and sleep.





## HOW DOES OUR GUT WORK WITH OUR BRAIN?



The vagus nerve, which runs from the brainstem to the intestines, directly connects the brain to the digestive system's enteric nervous system, an area with more than 100 million nerve cells—and trillions of microbes. The two nervous systems—brain and gut—communicate constantly, working to keep the body's systems functioning properly.

Researchers have found that if the microbiome gut bacteria are healthy, messages tell the brain when you've had enough to eat, when you need some relaxation time and when it's time to sleep. Conversely, researchers believe unhealthy bacteria in the gut can relay signals to the brain that you're feeling anxious or depressed, that you crave sugar, and that no matter how tired you are, you're not going to sleep well.



## HOW CAN YOU HELP YOUR GUT STAY HEALTHY?



*Microbiome gut bacteria need diversity to stay healthy.  
As you can surmise, what you eat has a major impact.*

Probiotic foods such as yogurt, kefir, sauerkraut, kimchi and kombucha contain live bacteria or yeast that supplement normal gastrointestinal flora and add diversity. Those probiotic bacteria also need their own food, called prebiotics, to survive. Prebiotics, the indigestible dietary compounds found in fibrous foods, include fruits and vegetables, roots and tubers.



*One study of probiotics looked at two groups of medical students taking a major exam.*

The group who received a probiotic supplement had less anxiety and better quality of sleep both before and after the exam than the group taking a placebo. Another study concluded that rats fed a prebiotic chow diet had better microbial diversity and sleep quality when facing stress than the group of rats eating standard chow.





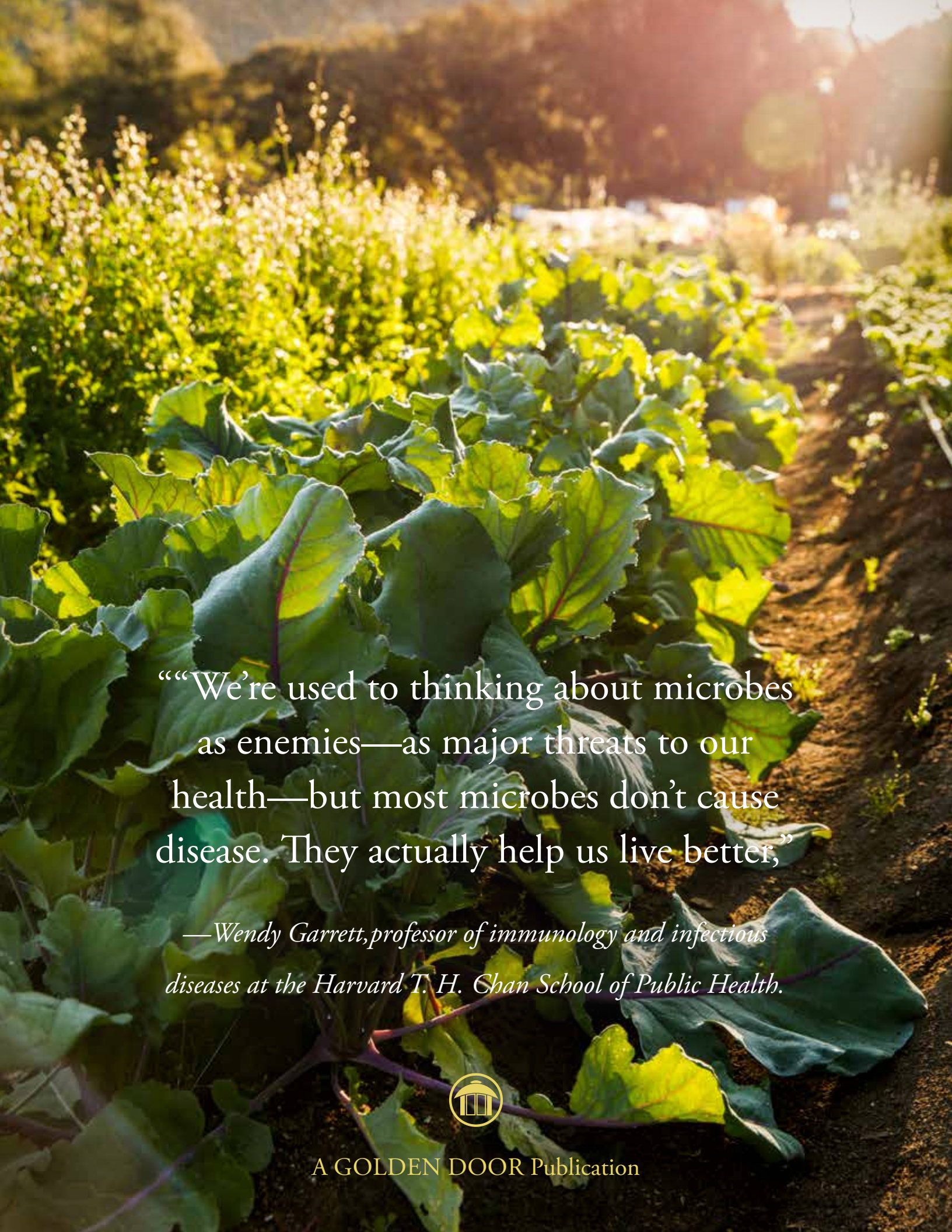
Fresh air and being out in nature also help bacterial diversity. Your body gathers a variety of microbes when you take a hike in the forest or stroll along the beach, go camping, walk a dog, and open a window or door in your home.

Another key factor in gut health is stress management. Stress allows in opportunistic and unhealthy organisms, increases inflammation and reduces microbiome diversity. To counter stress, practice mindfulness activities such as breathing exercises, meditation, prayer or yoga.

## GOOD NEWS FOR GOOD SLEEP

When you take simple steps to improve your gut health, your sleep should improve as well. And when you improve your sleep, it helps improve your microbiome gut health. With the recommended seven to eight hours of sleep each night, you're on the way to a healthy body, mind and microbiome.





““We’re used to thinking about microbes as enemies—as major threats to our health—but most microbes don’t cause disease. They actually help us live better,”

*—Wendy Garrett, professor of immunology and infectious diseases at the Harvard T. H. Chan School of Public Health.*



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