



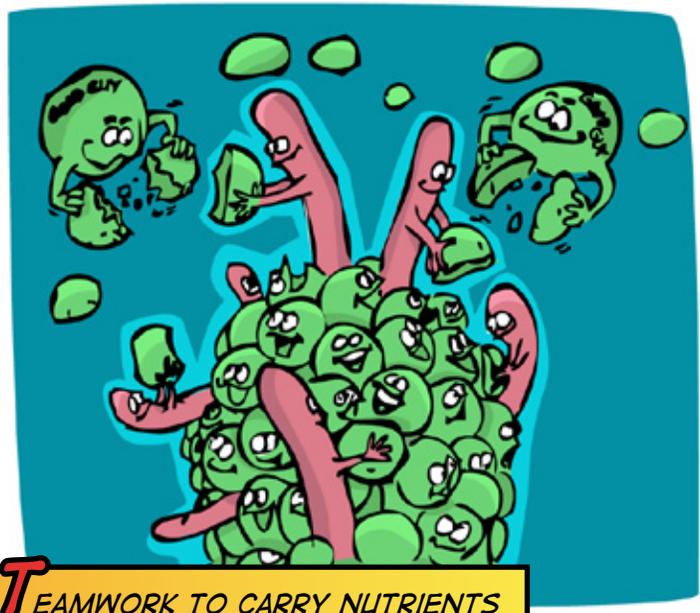
MOVING ALONG THE SMALL INTESTINE

The switchbacks of the small intestine will keep us zig-zagging through here for about four hours while the gentle muscle action pushes us along. This tube is about 20 feet or six meters long and as you can see, it's about two centimeters or one inch in diameter. Look closely. The walls aren't smooth. See the rows of tiny, waving fingers. Each finger is like a tentacle waiting to catch and absorb everything that goes down this tube. Each tiny finger, called a villi is covered by millions of microscopic hair-like microvilli. These hair-like microvilli trap the nutrients to help get them to the cells that absorb them. This field of fingers give us an amazing increase in surface area to better capture nutrients. In fact, if the surface of your small intestine were laid out smooth, it would be enough to carpet the floor of an average-sized room—about 18.5 square meters or 22 square yards.

The action in this part of your digestive tract determines whether you slowly starve us to create disease or feed us with the vital nutrients to create health.

The cells lining this tube have a crucial responsibility—to absorb about 90% of the nutrients from this mix. With this responsibility these cells work hard. They live a short but very satisfying life. Each cell replaces itself every three to five days.

The microvilli make it look like a field of very fine waving grass. Seeing them makes one realize why food must be broken down into extremely tiny particles. Notice we've got lots of company. The microvilli have an army of helpers—a vast population of microscopic organisms—minute bacteria. There are more of these microorganisms lining the digestive tract than there are us cells—trillions of them. These minute bacteria are highly beneficial



and make up about four pounds or close to two kilograms of Human's weight. Now that Human sends good food down here, these welcome house guests have multiplied to help us. They are important players to get nutrients to us and these 'good guys' protect us from the harmful microbes.

Your beneficial microbes or bacteria population started at birth. The first feedings of mother's milk from a healthy mother are rich in friendly bacteria. These microorganisms immediately coat the digestive tract to provide protection from the disease-causing microbes or pathogens. Human was fortunate as a baby to get a protective lining from mother's milk.

The best source to keep a rich supply of beneficial microbes flourishing in the intestinal tract are those that live on the surface of sprouts, vegetables and fruits. Human ingests these beneficial microbes on the skin of fresh, raw foods purchased from local organic gardens. Produce, however, loaded with pesticides has to be washed well, so even if there were any healthy microbes, they washed away. If we can maintain a balance throughout the gut of at least 80% friendly bacteria to 20% of the unfriendly or potentially harmful bacteria, we'll be able to keep Human well.

This army of beneficial microorganisms help us cells absorb the nutrients to feed you and provide a defense to keep foreign and harmful substances out as well. Before Human made changes to live a healthier lifestyle, the scene in here was much different. When we dealt with too much mental stress and lots of refined food, the rowdy party types—harmful

bacteria and viruses—overwhelmed our welcome house guests. The viruses thrived and also left their wastes. The mucous producing cells in here worked overtime trying to trap the critters and send them sliding on through to the large intestine. It was a losing battle. The good news is that Human's healthier lifestyle has restored this feeding tube, the intestinal tract, to bring us all back to health.

"ELEVATED" BENEFICIAL MICROBES

"There are probiotics that stay alive in the gut and are responsible for restoring the intestinal flora ... When people have good gut health, it's most often because they've ... consumed these naturally occurring, life-giving probiotics and beneficial microorganisms.

"Where can you find them? On fresh, living foods."

Medium: Secrets Behind Chronic and Mystery Illness and How to Finally Heal,
Anthony William, 2015

"ELEVATED" MICROBE SOURCES

"A top source of elevated microorganism is sprouts. ... Elevated microorganisms are always found above ground, on the leaves and skins of fruit and vegetables."

Medical Medium: Secrets Behind Chronic and Mystery Illness and How to Finally Heal,
Anthony William, 2015

Let's look at some of the work our welcome guests do. They're producing digestive enzymes—enzymes that break amino acid chains into shorter segments or to prepare fats so we cells can absorb them. These tiny house guests work like a well-trained chorus as Human has given them the raw ingredients to flourish—meaning several daily servings of fruits and vegetables, nature's carbohydrates. These microorganisms are also able to manufacture vitamins and protect the important mucous lining of this wondrous tube.

As we make the turn of another switchback, I'll point out our teamwork. With all the instantaneous reactions happening all at the same time, you can see how important teamwork is to us. Every nutrient relies on another to slip into those cells to be passed through the gut wall to enter the portal vein. We're able to do that as we function electrically. Our electrical nature facilitates teamwork—allowing us to communicate instantly throughout Human's body.

We'll visit the liver later, just want you to know for now that we are responsible for the orderly transport of each nutrient into the portal vein on the other side to flow in the blood to the liver.

As we round another switchback, I'll emphasize that eating fresh fruits and vegetables are the best thing you can do for us. That's how you give us this rich supply of vitamins, minerals, enzymes and as yet undiscovered and unnamed nutrients we are flowing with now. Human understands that we can handle small amounts of meat protein as we're able to break the chains of amino acids into digestible sizes. Larger servings of meat give us a problem as we have difficulty breaking down all the long chains of amino acids—then the partially digested protein sits in here and rots. The putrefying protein is great fodder for the bad guys so they multiply.

Human knows now that is isn't necessary to rely on meat for protein. Green leafy vegetables are a rich source too. Once the tiny amino acid chains from proteins reach the liver, they might become ... an antibody to work for your immune system, a hormone for one of your glands, tissue that cushions us cells, an enzyme that is needed to assist any process in the body, a neurotransmitter in your brain, or ... I think you get the picture. Amazing how we can put to use a small amount of usable protein!

The third most important food we need is a small amount of high quality fat. Now that the bile salts and lipase enzymes have broken the fats into tiny chains, you can see they're also being absorbed as we slide along. Human knows to beware of fats in highly processed foods.

EATING CHOICES FOR GREAT HEALTH

1. Fruit everyday
2. Green leafy vegetables every day
3. Lots of vegetables every day
4. Meat and poultry—small servings. If possible find sources from animals that are raised humanely and allowed free range.
5. Fat—very little fat is needed.

Those fats make us want to throw-up or shrivel up. One fat we can easily handle is found in coconuts—we readily use a little coconut oil.

Human takes care when buying oils to get ones that help rather than harm us. Actually it is best to rely on food to supply healthy fats rather than processed oils in bottles. The process to extract oils from seeds, nuts or beans often means they are rancid as they've been subjected to high heat, solvents and bleach that strip away the vital nutrients. Rancid oils mean extra free radicals. Free radicals are molecules with an extra electron. The extra electron must pair up with another one—that means they rip an electron from any tissue they can find. Free radicals aren't all bad. They serve us well to clean up toxins but when we have to deal with an excess of them, we don't like their bite! Excess free radicals create wrinkles in skin, damage artery walls, and contribute to disease. And most of the highly processed oils and foods mean rancid fats. Yuck, I get an icky feeling just thinking about the sticky stuff.

Let's get back to good news. Surprise! Here's a rap for you, performed by the friendly microbes...

WE LOVE IT WHEN ... WE GET ORGANIC
 GUESS WHO PACKS UP IN A PANIC,
 WE LOVE IT WHEN ... VEGETABLES BRUSH THROUGH
 SWEEPING ALONG THE RESIDUE,
 WE LOVE IT WHEN ... SUN AND GREENS WE SEE
 MINERALS THEN DANCE WITH SPECIAL GLEE,
 WE LOVE IT WHEN ... MINERAL IONS ARE APLENTY
 KEEPS US ALKALINE AND COMPLETELY HEALTHY,
 WE LOVE IT WHEN ... ENZYMES WORK ALL THROUGH THE DAY
 NUTRIENTS SCATTER THE BEASTIES AWAY,
 LET'S FILL IN THOSE VALLEYS AND SCHISMS
 WITH LOTS OF FRIENDLY MICROORGANISMS,
 WE LOVE IT WHEN ... AN ARMY OF BIFIDOPHILUS
 IS ESCORTED BY TROOPS OF ACTIVE ACIDOPHILUS,
 WE LOVE IT WHEN ... YOU EAT FOR HEALTH EACH DAY
 KEEPS US READY TO REST, RELAX AND PLAY.

We're rounding the last curve of the small intestines and approaching the ileocecal valve—the entrance to the large intestine. Notice how slippery it's getting. That's from the bile in this mix. Bile is here to help keep the hordes of bacteria we'll find in the colon or large intestine from climbing up the small intestine. Ah, the ileocecal valve is opening smoothly—we've given it an electrical signal—like using a remote control to open a garage door.

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