

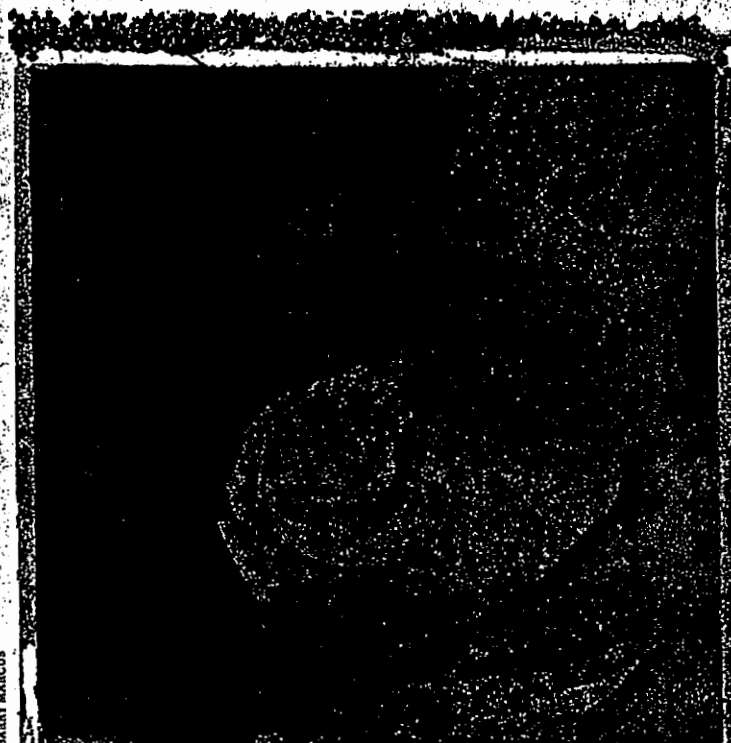
Gut Reactions

IN LATE 1990 MICHAEL VONELLI'S life was at a standstill. The 27-year-old shipping supervisor had been incapacitated by chronic diarrhea, abdominal pain, constant fever and severe weight loss. He had been diagnosed with Crohn's disease, a chronic inflammation of the small intestine and bowels, and though he was taking multiple medications—including steroids and antibiotics—his condition hadn't improved. He was on a leave of absence from his job and had postponed starting a family. As a last resort, Vonelli left his home in Bethlehem, Pa., to see a doctor—his eighth—in New York City who had a reputation for treating the patient rather than the disease. "I was at my wits' end," he recalls. "I had battled this for three years and put everything on hold."

Vonelli's eighth doctor was Leo Galland, author of "The Four Pillars of Healing" (330 pages. Random House. \$24), who diagnosed a wide variety of food sensitivities. He put Vonelli on a strict diet and weaned him from his drugs. Seven years later Vonelli's life is moving again. Symptom-free, he is back at work and taking night classes.

Galland told Vonelli his problem was leaky-gut syndrome, the unhappily named condition that some researchers say is implicated in dozens of diseases. Leaky-gut syndrome, or increased intestinal permeability, occurs when the wall of the small intestine is damaged. A healthy intestine allows only nutrients to pass into the bloodstream; when it is damaged, larger molecules—such as incompletely digested fats, proteins and starches—slip through, as well. (So do bacteria.) These substances, recognized by the body as foreign, can trigger an immune response in other organs. Galland and others who have written on the syndrome claim

Tiny leaks in the lining of the small intestine may play a role in diseases as diverse as asthma and arthritis
BY WENDY MARSTON



BARRY MARCUS

that healing a "leaky gut" with strict diets and nutritional supplements can help control insomnia, obesity and bad breath, as well as diseases from asthma to arthritis to eczema. Many researchers agree that the intestinal tract plays a key role in the immune system—but whether the gut is the root of so many problems is still hotly debated.

When the gut works right, as with most organs, we don't notice it. The small intestine is a convoluted, 25-foot tube between

the stomach and the large intestine. Its lining is made up of millions of leaflike structures called villi, which in turn are covered with millions of microvilli. This intestinal forest harbors bacteria and yeast, which normally maintain a healthy balance and help carry out the intestine's main functions—breaking down food into nutrients the body can use and moving along waste and harmful substances to the bowel. Since most of the potentially dangerous material a human being encounters is in food, the gut's immune function is especially crucial,

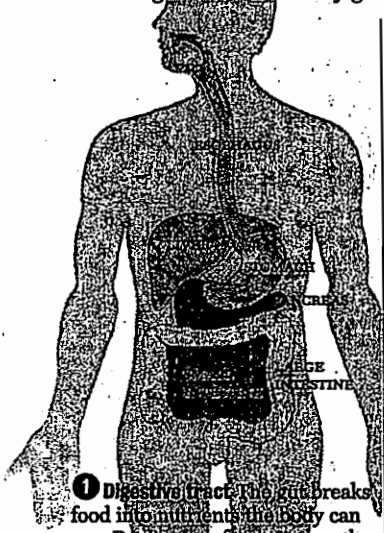
and researchers now estimate that more than two thirds of all immune activity occurs in the gut.

But in some people the wall of the gut seems to have been breached—either because the network of intestinal cells develops gaps, or bacteria and yeast overwhelm it and migrate into the bloodstream to cause an infection. Researchers still don't know exactly why or how these microscopic breaches occur. Among the possible causes: food allergies, too much aspirin or ibuprofen, certain antibiotics, excessive drinking, a compromised immune system or a parasitic infection. An overview of the subject published in 1995 in the journal *Gastroenterology* found evidence of leaky gut in diabetics, alcoholics, smokers, burn patients, iron-deficient children, schizophrenics and long-distance runners.

Leaky-gut syndrome isn't a disease itself but is thought to play a part in other diseases. Allowing undigested food or bacteria into the bloodstream sets in motion a chain of events: the immune system reacts, the body thinks it's sick and expresses it in a number of ways, such as a rash, diarrhea, joint pain, migraines, even psychological symptoms such as depression. Those problems can add up to a disorder that has no obvious relation to the original cause. A three-year survey of

Intestinal Fortitude

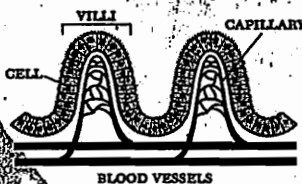
Infections, poor eating habits, antibiotics, alcohol, aspirin and ibuprofen can all harm the lining of the small intestine. And an irritated gut, as the theory goes, can spring a leak.



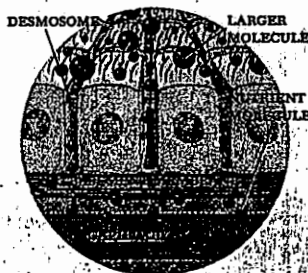
1 **Digestive tract** The gut breaks food into nutrients the body can use. By the time food reaches the small intestine, the process is occurring on a molecular level.



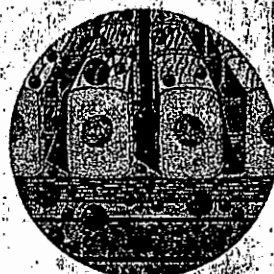
2 **Intestinal lining** The mucosal layer of a healthy gut filters out microorganisms and undigested proteins, which are then passed to the colon.



3 **Villi** Protrusions in the mucosal layer are covered by a barrier made of a row of cells. Nutrients enter the bloodstream through capillaries at the cells' base.



4a **Proper absorption** Desmosomes bind cells together tightly, allowing only small nutrient molecules to pass between them.



4b **Leaky gut** Irritation weakens desmosomes, opening gaps between the cells and letting larger molecules and bacteria pass.

SOURCES: "DIGESTIVE WELLNESS," BY LIPSKI; "HUMAN FUNCTION AND STRUCTURE," BY LUCIANO, VANDER AND SHIRMAN. NEWSWEEK GRAPHIC BY KARL GUDE

chronic-fatigue-syndrome patients in Nevada and California showed that the only thing one group had in common was a history of infection with the waterborne parasite giardia, which is suspected of causing tears in the intestinal wall. To confuse matters more, treatments for other ailments can cause or worsen a leaky gut. Untangling what is gut-induced and why that happens can be tricky.

Until a few decades ago it was thought that unless a medical problem directly affected the gut, it worked normally. But now physicians know that trauma to other parts of the body causes the gut to react. Dr. Douglas Wilmore, a researcher at Harvard Medical School, showed how intestinal permeability increased in postoperative patients and people with AIDS. He also found that the amino acid glutamine—the fuel intestinal cells use to replace themselves every three to five days—improved the gut's function and helped the overall health of the patient.

To a handful of true believers, leaky-gut syndrome can be the explanation for almost anything that goes wrong in the body. "When you start looking for it, you see leaky gut in lots of people—even autistic children and people with attention deficit disorder," asserts nutritionist Elizabeth Lipski, author of the books "Digestive Wellness" (368 pages. Keats Publishing, \$14.95) and "Leaky Gut Syndrome" (48 pages. Keats Publishing, available De-

ember 1997). She thinks, naturally, that traditional medicine isn't moving quickly enough to recognize the significance of this condition. "There is lots of this information in scientific research," she says, "but it isn't being used fully yet." Galland also sees a virtual epidemic of leaky guts, estimating that the syndrome plays a role in 70 percent of people with chronic fatigue syndrome, eight out of 10 aspirin or ibuprofen users, most alcoholics and anyone who is hospitalized. He believes that parasites that can lead to leaky-gut syndrome lurk in most municipal water systems, and recommends that people "treat your food and water supply as if you were in a Third World country. Boil and filter it, or use bottled water."

But you still have to eat something, and Galland and others contend that even the most innocuous of foods can create intestinal havoc. One common prescription for leaky-gut syndrome is an elimination diet. An elaborate series of urine and blood tests is used to pinpoint food allergies. Based on the results, whole categories of food, such as dairy products, wheat products or fruits, are banned and then gradually added back over the course of as much as six months while the patient is monitored for reactions. This is what worked so well for Vonelli, though at a high price. "It took away my Italian heritage," Vonelli remembers. "No more homemade pasta, mozzarella cheese, fresh bread, everything from the good life."

That all-purpose nutritional standby, fiber, may also play a role in healing problems of the gut. An NIH-funded study from Louisiana State University showed that rats who ate no fiber had abnormal intestinal linings. Glutamine, a nonessential amino acid, also plays a role in maintaining the integrity of the intestinal wall. The research by Wilmore was extended by his wife, physician Judy Shabert, in her book "The Ultimate Nutrient: Glutamine" (224 pages. Avery Publishing Group, \$9.95), co-written with Nancy Erlich. She cites a study in which athletes who took glutamine supplements had fewer colds than those who didn't.

But to conclude from these studies that leaky-gut syndrome is widespread, treatable and the cause of all sorts of problems is a leap scientists and most physicians won't make. Peter McNally, a gastroenterologist at Eisenhower Army Medical Center in Augusta, Ga., and a spokesperson for the American College of

Gastroenterology, says not enough is known about a leaky gut. McNally uses celiac disease, a wheat allergy that causes a painful skin rash and diarrhea, as an example of a proven relationship between the intestine and disease. "Finding that skin-to-gut link," warns McNally, "was not easy. It required vigorous science, and this is an area of research that is still in its infancy."

Cathy Kapika, a professor of nutrition at the Chicago Medical School and a spokesperson for the American Dietetic Association, is also skeptical. "The gut and glutamine are definitely hot areas of research right now, but saying that a leaky gut is the cause of all of these problems is too simplistic." As for strict elimination diets, Kapika recommends using them only as a last-resort diagnosis of food allergies, under close medical supervision; otherwise, they can cause serious malnutrition. But care and maintenance of the gut, an easily abused organ, makes sense in any case. Be alert for allergic reactions to foods that may develop after a sickness or a round of medications. After taking antibiotics, eating yogurt that has live acidophilus can replenish healthy intestinal flora. Cutting down on alcohol, antibiotics and aspirin (as well as not mixing them), and increasing one's fiber intake—Americans typically get about a third of what they should—can go far in maintaining intestinal fortitude.

With MARY HAGER in Washington