





# IT'S FOR CLEAN

WE'VE BECOME A NATION OF GRIME FIGHTERS, AND THERE'S GROWING EVIDENCE THAT WE'RE SACRIFICING OUR SAFETY AND OUR SANITY TO SANITIZATION. | BY CARLIN FLORA | PHOTOGRAPHS BY FREDRIK BRODEN



# On

A RECENT *Tyra Banks Show*, a young mother publicly confided she was terrified that her apartment could

be harming her toddler son—because it wasn't perfectly clean. Banks sent a microbiologist to the home to test for germs. Sure enough, the place was filled with them! "Are you surprised the bathtub was the dirtiest part of the house?" Banks asked. "Yes," the woman answered, her voice quavering and her eyes welling with tears, "I clean it with bleach."

Banks leaned in: "But do you clean it after every shower? Do you really scrub it?"

"Well," the woman confessed, "I have a 2-year-old. I don't always have time."

Such chagrin is no surprise to writer Katherine Ashenburg, who heard cleanliness confessions throughout a recent tour promoting her book *The Dirt on Clean: An Unsanitized History*. "I don't shower every day," people sheepishly whispered to her, as though it were a grave confession. That experience only reinforced her belief that "we are obsessed with cleanliness" to "a point of absurdity. Today there seems to be no resting place, no point at which we can feel comfortable in our own skins for more than a few hours after our last shower. Clean keeps receding into the distance."

Interest in home and body hygiene has waxed and waned through the ages, from early Egyptians who frolicked in pools for hours to Enlightenment Europeans who never bathed a day in their lives, believing that water spread diseases such as the Plague. But ever since deodorant and mouthwash entered the American marketplace in the twentieth century, standards of cleanliness have steadily ratcheted up.

Now, nearly a decade into the twenty-first century, we are convulsed by full-on germophobia and personal hygiene mania. Office supply stores sell germ-resistant highlighters and scissors. Ten years ago hand-sanitizing gels could be found only in hospitals. Now they're flying off the shelves of every grocery and drug store. In 2005, more than \$67.3 million in sanitizers were sold, a 54 percent increase over 2004.

Why the massive panic over invisible threats? On the surface, it seems an earnest effort to promote health. But a closer

look suggests that we feel a deep distrust of our bodies and profound pessimism about human nature: The backyard is a hotbed of creepy crawlies, my body is brimming with toxins, and the germs in my kitchen are just waiting to rise up and infect me!

We scour and scrub in an attempt to alleviate our anxieties and exercise control over an environment we perceive as hostile—a futile act that gives a whole new meaning to germ warfare. Our battles against what is by far the largest population of living things on earth—the weight of all microbes is 25 times that of all multicelled animal life combined—also misunderstands the role of dirt and the place of germs on the planet. Without bugs we wouldn't be drawing breath.

Because we seem never to feel clean enough, all our scrubbing and scouring only stokes the anxiety it is meant to allay. But it may be sabotaging our physical health as well. Just as overprotecting children can keep them from developing coping skills, sanitizing ourselves may be undermining the immune system, which requires germs to keep it viable. What's more, overuse and misuse of cleaning products directly expose us to toxic chemicals. And, quite possibly, they even encourage what germophobes fear most—the rise of resistant "superbugs."

## It's Their World

"THEY'RE LYING IN wait for you at the ATM machine and on your computer keyboard at work. Secretly, they attach themselves to your hands when you push a shopping cart at the store. The little pests will even attach themselves to your children's hands when they romp on playground equipment." So warns materials sent to the press by a maker of hand-sanitizing gels.

Titled "99 Places Where You Need to Watch Out for Germs," it is 100 percent intimidating. Who could possibly keep an eye on all 99? More surreptitiously the material perpetuates a fundamental misconception about germs. The idea of watching for and banishing creatures that are literally everywhere is patently preposterous.

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The adult human body contains an estimated 100 trillion cells, points out microbiologist Lynn Bry, an assistant professor at Harvard Medical School. But only 10 percent of those cells actually belong to us! The rest are—are you ready for this?—germs. Most are bacteria that live in the digestive tract and help you break down food and secure nutrients as they protect you from the minority of disease-causing bug groups.

"If you were germ-free this moment," says Bry, "you'd be dead within two weeks." Microbes living in the gut, for example, make vitamin K,



prevent illness, nothing beats regular hand washing with hot water and plain old soap (see sidebar on next page). So says the Centers for Disease Control and Prevention, the nation's—and perhaps the world's—highest authority on infectious diseases.

## Wiping Away Anxiety

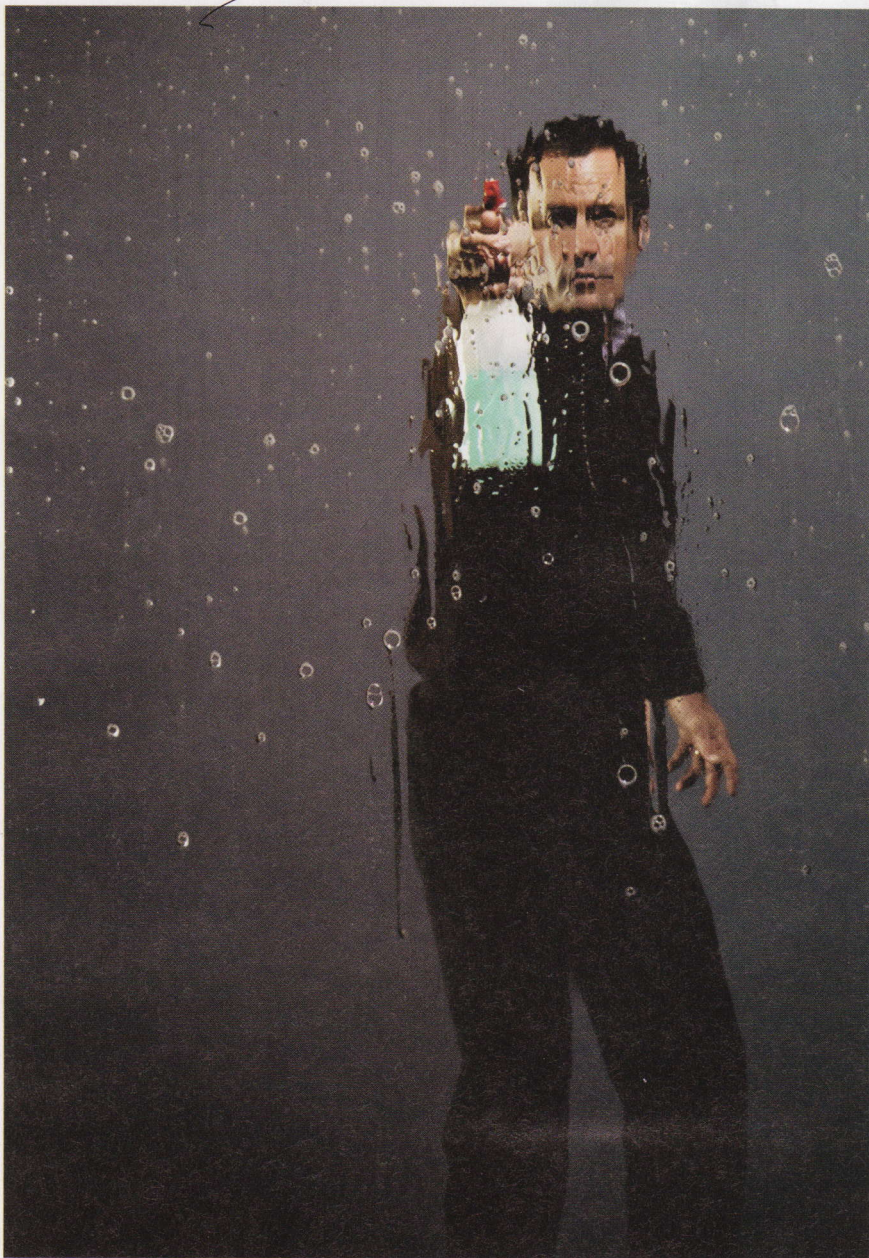
Why, then, do we so often wash our hands? It could be that being the most squeaky person around makes you more popular. It could be that being the most squeaky person around makes you more popular. It could be that being the most squeaky person around makes you more popular.

But what Leahy really sees in those preoccupied with cleaning is an excess of anxiety. Cleaning is the "guts" activity for the anxious. That explains its popularity with those on the extreme end of the anxiety scale. Those suffering from obsessive-compulsive disorder, it classically manifests as excessive hand-washing. People resort to it in a bid to calm themselves down. Given that because it's their Leahy says, the inability of indoor plumbing is a sign that everyone has access to. And that's why we're fascinated that washing is a compelling stand-in for getting rid of unwanted thoughts and feelings. The problem is it doesn't work—or at least not for long. Anxious people think that if they wash their hands enough, they'll be able to wash the anxiety away. But the truth is that time must be spent on it, or they will grow more anxious. "If I don't get rid of the anxiety, now it's going to get worse," Leahy says. "It's a vicious cycle."

Leahy also notes that anxiety is a risk factor for obsessive-compulsive disorder. But the anxious need to be clean, she says, is a way of dealing with the uncertainty and regret by doing all they can to prevent a bad thing from happening. Risk misperception is at the heart of the disorder. They distort the probabilities. The chances of dying from a severe case of salmonella are low, but the chances of dying from an obsessive-compulsive disorder are high. Leahy says, "It's a way of dealing with the uncertainty and regret by doing all they can to prevent a bad thing from happening. Risk misperception is at the heart of the disorder. They distort the probabilities. The chances of dying from a severe case of salmonella are low, but the chances of dying from an obsessive-compulsive disorder are high."







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## Wiping Away Anxiety

WHY, THEN, DO we see all germs as evil? It could be that being the most sparkling person around confers moral superiority, offers psychologist Robert Leahy, director of The American Institute for Cognitive Therapy in New York and author of *The Worry Cure*.

But what Leahy really sees in those preoccupied with cleaning is an excess of anxiety. Cleaning is the “go to” activity for the anxious. That explains its popularity with those on the extreme end of the anxiety scale, those suffering from obsessive-compulsive disorder; it classically manifests as excessive, ritualistic hand-washing. People resort to it in a futile attempt to calm themselves simply because it's there, Leahy says. Given the ubiquity of indoor plumbing, it's an activity everyone has access to. And from an early age we're taught that washing is a good thing. The physical act of cleaning is a compelling stand-in for getting rid of unwanted thoughts and feelings.

The problem is, it doesn't work—or not for long. Anxious people think that intrusive thoughts about, say, the need to wash the kitchen counter for the third time must be obeyed or they will grow more insistent. “If I don't get rid of the anxiety now, it's going to get

worse,” Leahy says. But giving into that voice is what makes it stronger. Ignoring it weakens it—once the person comes to see that nothing terrible actually happens when an urge is resisted.

Normal life *ipso facto* involves risk and uncertainty, even occasional regrets, says Leahy. But the anxious seek to avoid all risk, uncertainty, and regret by doing all they can to keep bad things from happening. Risk misperception is at the root of their disorder. They distort real probabilities. The chances of dying from a severe case of salmonella are far lower than the chances of dying from obesity-related causes. “But no one runs away screaming from a Big Mac,” says Leahy. We do, however, watch in horror reports of the latest bacterial breakout.

Real life is a balancing act of competing risks, adds Leahy. There is a risk of getting an infection if you don't clean, but

essential to the proper clotting of blood. “We have an irrational fear of germs and dirt,” she contends. “And in the grand scheme of things, the very oxygen we breathe is a byproduct of blue-green algae”—scum—“that evolved millions of years ago.”

Our internal flora may even be able to cure some of our most perplexing diseases. A molecule naturally produced in the gut completely eliminates the symptoms of inflammatory bowel disease in animals, researchers recently reported in *Nature*. Human trials of the substance are in the works.

“I fully advocate appropriate hygiene and cleanliness,” says Bry. “Don't suck on your fingers after you cut open a chicken. But you don't need to scrub yourself until you're sore.”

On her press tour, Ashenburg suggested to audiences that we really don't need to wash above the wrists very often. She was scolded by her listeners. But if you're looking for a way to



too much cleaning increases your risk of developing OCD. "I shake hands with everyone who comes into my office," he reports. "Maybe I get an extra cold per year—but that trade-off is worthwhile because I want to be warm and friendly toward my patients. There is no escaping risk altogether."

## Why We Worry

SIGNIFICANTLY, OUR DREAMS of disinfection parallel the rise of anxiety in our culture. After analyzing anxiety levels measured among young people in 1952 and 1993, psychologist Jean Twenge of San Diego State University concluded that levels of anxiety in today's average teenager are equivalent to those in patients treated for a psychiatric disorder 50 years ago. Other studies have documented the rise of anxiety among college students and adults.

Twenge points to social isolation as one cause. Studies show we have fewer close friends and dwindling social networks—and spend less time with them than we did, say, 20 years ago. "People who feel interpersonally connected are less likely to be anxious," says Leahy.

And just as our communities are becoming more transient and fragile, they are also becoming more diverse. Though we may not be consciously aware of it, says John Portmann, a professor of religious studies at the University of Virginia, our hygiene obsessions may disguise a residual fear of mingling with people different from ourselves. He points to a study by University of Montana historian Jeff Wiltse, *Contested Waters: A Social History of Swimming Pools in America*, which argues that widespread fear of insufficiently chlorinated water in the '60s in the South was really the expression of irrational beliefs about African-Americans finally being granted access to public pools.

If cleaning is an expression of our neuroses, it also assuages our psyches. Buffing and polishing can give rise to feelings of spiritual purity and even ease guilt. Enter: the "Macbeth effect." Researchers find that subjects who are prompted to focus on

unethical behaviors such as lying, stealing, or betraying friends are subsequently more likely to engage in activities suggesting they feel physically dirty. For example, they wash their hands more than controls do.

The late anthropologist Mary Douglas, in her classic book *Purity and Danger*, argued that a preoccupation with dirt runs through all of the major religions. But it's not principally about hygiene. Rather, cleanliness is a way of keeping chaos at bay.

"You can't get rid of your daughter's boyfriend that you don't like," says journalist Margaret Horsfield, author of

It is likely that envisioning the build-up of "junk" in our bodies is a way of expressing cumulative emotional damage.

## HOW TO KEEP YOURSELF HEALTHY

Preoccupation with germs is one thing. A healthy respect for hygiene is another, especially since many people and products travel globally. Microbiologist Anne E. Maczulak, author of *The Five-Second Rule and Other Myths About Germs*, offers essential cleaning tips.

■ **HANDS ON** Washing your hands after using the restroom eliminates 80 percent of dangerous germs. Use warm water and soap for a full 20 seconds (two rounds of "Happy Birthday" if you prefer humming to counting).

■ **HANDS OFF** Avoid touching your face. Germs enter you via eyes, nose, and mouth. Some adults touch their face up to 100 times a day; children do it even more.

■ **BEWARE HOTSPOTS** There are five places in the home where germs love to lurk: kitchen sponges and dish cloths, the air blown from a running vacuum cleaner, the washing machine, a toilet during a flush, and the kitchen trash can. Ideally you should:

Change sponges every week or sanitize them with chlorine and water.

Replace the vacuum bag once a month.

Wash your clothes with an antimicrobial laundry additive.

Keep the toilet lid down while flushing.

Disinfect toothbrushes regularly.

Disinfect the inside of the trashcan each time the liner is replaced.

■ **SLICE SAFELY** Don't forget to clean the cutting board. There are 200 times more fecal bacteria on the average home cutting board than on the toilet seat. Immediately after use, wash with hot soapy water and rinse well. Pat dry with paper towels, then air-dry completely.

■ **HANDLE WITH CARE** Be mindful of places touched by wet hands or raw meat—the refrigerator handle, the cabinet where the garbage can sits, sink faucet handles.

■ **SCRUB RIGHT** Use "disinfectant" or "antimicrobial" cleaning products and heed instructions. If advised to leave a product on for 10 minutes, do so, then wipe off with water. Clean sink drains by running water and pouring a little bleach down them.

■ **WATCH THE WASH** Doing laundry in cold water saves energy but spares germs. The dryer kills some microbes, but not salmonella bacteria or hepatitis A virus.

■ **DEBUG HOTEL ROOMS** Telephones and remote controls are germ hideouts; it's wise to keep disinfecting wipes in your suitcase.

■ **ONE PLACE NOT TO WORRY ABOUT:** Frequently asked, "Can I catch something from a public toilet seat?" Maczulak answers, "Not unless you really try. The average office has 21,000 microbes per square inch of surface—400 times dirtier than a toilet seat."

a social and psychological history of housecleaning, *Biting the Dust: The Joys of Housework*. "You can't sort out the fact that your mother is dying or that you've gained 10 pounds. But you can get that sink looking better." The process of cleaning might be frustrating, she adds, but it does make us feel that we've achieved some small thing in an unmanageable world. "It gives an illusion of order."

## A Spotless Mirror

OBSESSION WITH CLEANLINESS is also an ill of affluence. Overworked we may be, but we worry about microorganisms



because we can afford to. So we remodel our bathrooms to accommodate an apothecary-size supply of potions for youth, beauty, and cleanliness.

"I live in an area where a lot of money has poured into the local economy," says Horsfield, "and many women I know run big houses. I'm shocked at how high their cleaning standards are. I think they feel they have to live up to the prosperity they've acquired." They are aided and abetted by a clique of domestic goddesses on TV, along with the proliferation of high-end home and garden magazines, glamorizing household toiling.

Cleanliness, however, doesn't stop at the surface. It's also taking a highly invasive course. A growing trend among upper-class women is getting a colonic enema or vacuuming at the spa, along with a manicure and pedicure. Vegan blogger Kathy Freston advocates dietary detoxification. "Doing the cleanse delivers one to a fresh start," she insists. "It's like a vacation, a reprieve, from our old and tired ways...a way to let your body rid itself of all the stored up junk it has had to process throughout the years. I'm not saying it's easy, but it's worth it."

In fact, the body has intricate mechanisms for cleaning itself without vacuums or extreme diets. The mucosal cells lining the digestive tract, for example, replace themselves frequently. Embodiment is the very heart of our existence; it is entirely likely that envisioning the buildup of "junk" in our bodies is a way of expressing cumulative emotional damage. Get rid of that and perhaps you can purge personal heartaches, too.

## Big and Bigger

IT'S ONE THING to experience anxiety, a need for control, a fascination with "fresh starts," even self-focus. But media and marketers have exploited those concerns, and in doing so have exacerbated them. "We've developed a paranoia in the last five to 10 years," says Andrea Gardner, author of *The 30-Second Seduction: How Advertisers Lure Women Through Flattery, Flirtation, and Manipulation*.

Gardner points to TV shows in which an expert shines a black

## WHY GERMS RULE

Microbes (bacteria, yeasts, protozoa, and viruses), aka germs, are the largest population of living things on earth.

- Germs existed 3 billion years before humans arrived.
- They are far more capable of living and reproducing in extreme conditions than are higher organisms such as humans.
- Germs recycle carbon and nitrogen, nutrients needed by higher life forms.
- Scientists believe there could be trillions of bacterial species on earth; microbiologists have identified less than 1 percent of them. A Princeton geoscientist once estimated more than 500,000 different types of bacteria in just a small scoop of soil.
- Also, it's impossible to calculate the incidence of colds from a specific virus because there are more than 100 rhinoviruses, which can band together in an infinite number of combinations.

Source: *The Five-Second Rule and Other Myths About Germs*, by Anne E. Maczulak.

The worst consequence of the cult of clean is that it undermines the immune system, inviting allergies, asthma, even depression.

light on a seemingly tidy hotel room and then exclaims, "This mattress looks completely clean and yet look at all the dust mites!" Their eyes opened to invisible threats, the audience gasps in horror at the tiny interlopers.

Marketers are also tapping into parental vigilance. If you aren't disinfecting to protect your kids and they get sick, the message is you're a bad mom, says Gardner. Advertisers also remind parents that by keeping the family well, they won't have to miss work themselves.

"The definition of clean is expanding." This from no less an authority than Packaged Facts, the marketing research

firm. They conclude: "The relationship between cleanliness and health is clearer than ever in the minds of consumers in a time of germ warfare where life-threatening asthma, allergies, SARS, avian flu, and superbugs are a daily reality."

## Casualties of War

THE PURSUIT OF purity, like the quest for perfection, can have consequences.

Escalating standards of cleanliness disproportionately burden women, who still bear the brunt of domestic chores despite working full-time. Women in relationships do two-thirds of the housework, a continuing source of personal stress and family friction.

But the most serious consequence of the cult of clean may be that it undermines the immune system, which, like the brain, grows and develops only when presented with challenges. Exposure to infectious agents is essential. It prompts the immune system to create specific antibodies and then store them so they can be readily summoned to defensive duty when a similar bug poses a threat.

Many scientists believe that our sanitized surroundings are fostering allergic disorders in children, which have doubled in the last decade. According to the so-called hygiene hypothesis, children who lack exposure to dirt, bacteria, and other microorganisms develop weak immune systems and are thus prone to asthma and allergies.

Studies show that children with many siblings, those who live on farms, those who enter day care in their first year, or who have a cat—circumstances that expose them to bacteria in soil or air—are much less likely to develop allergic diseases than children who face none of those circumstances. Bodies with no bacteria, viruses, and parasitic diseases to fight off turn on innocents like peanuts and pollen and do battle with them.

Christopher Lowry takes the hygiene hypothesis further



and contends the lack of exposure to germs harms our minds as well as our bodies. An assistant professor of physiology at the University of Colorado, he points to growing evidence that disorders such as depression and anxiety, like asthma and allergies, are set off by inflammatory processes within the body. The high incidence of depression and anxiety in developed countries could be due to diminished contact with benign microorganisms to which we were exposed throughout our history—organisms that raise the bar for setting off inflammatory processes.

“The hygiene hypothesis is widely accepted among immunologists,” says Lowry. “It suggests that we have less exposure to certain organisms in the soil and water than we used to. In the case of the soil, the organisms are still there.” But unless they live on farms, kids don’t play much in the dirt anymore. As for water, he observes, municipal water sources have been purified and sterilized. Lowry “can imagine that if a child goes out to play in the field and gets wiped with sanitizing cloths as soon as he comes in, it could be limiting his exposure to those microorganisms in the soil.”

At the same time that it is weakening us and our children, the overuse of cleaning products is beefing up the germs around us, turning garden-variety microbes into superbugs. “If you routinely expose microbes to cleaning agents, over time the microbes could evolve to tolerate more of the stuff,” says Bry.

Germs, after all, are far more adaptive than we are. A carton of milk left out of the refrigerator overnight will host thousands—thousands!—of generations of germs. In just hours, they will have evolved characteristics to help them thrive in that carton.

As director of strategic initiatives at AmeriCares, Ella Gudwin grapples firsthand with the adaptability of germs and the tenacity of infectious diseases such as dysentery in disaster regions. “They evolve in response to treatments—and only become stronger,” she observes. “The whole world is covered in a small film of fecal matter,” she adds. “Just get used to it.” **PT**