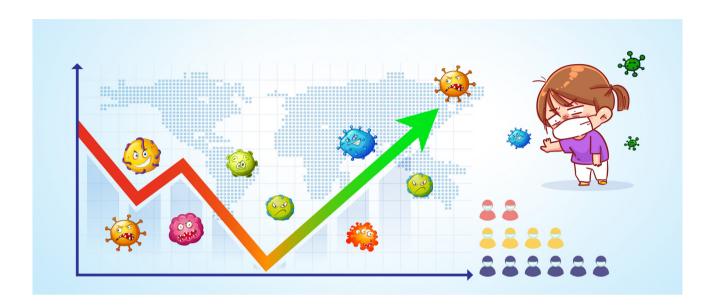




Flu, Colds, and the Immune System



Every year, as temperatures drop and scarves come out, so does influenza (the flu). It's not just a seasonal nuisance—it's a global health challenge. According to the World Health Organization, influenza infects an estimated one billion people each year. Of these, three to five million become seriously ill, and as many as 650,000 die from flu-related respiratory complications. The burden is especially heavy in developing countries, which account for 99% of all deaths from flu-related lower respiratory tract infections in children under five years of age.

Flu or Just a Cold?

Many have wondered at some point: Is it just a cold, or is it the flu? The symptoms often overlap—cough, sore throat, fever, fatigue—but the culprits behind them are quite different. The flu is caused specifically by influenza viruses, primarily types A and B, and tends to strike hardest during the winter months. Colds, on the other hand, can be caused by over 200 different viruses, most commonly rhinoviruses. Other contributors include human coronaviruses, human parainfluenza virus (HPIV), and adenoviruses, and colds can hit at any time of year.



Generally speaking, colds are milder and develop more gradually, while the flu often arrives abruptly and hits like a truck. Both illnesses usually run their course within a week or two, and most people recover with rest and hydration. But the flu can sometimes take a dangerous turn—especially in vulnerable individuals.

Feature	Flu	Cold
Cause	Influenza viruses (A, B, C, D)	200+ viruses (rhinovirus most common)
Seasonality	Peaks in winter	All year round
Severity	Moderate to severe	Mild
Onset	Sudden	Gradual
Duration	1 – 2 weeks	About 1 week
Treatment	Symptom relief; antivirals in some cases	Symptom relief only



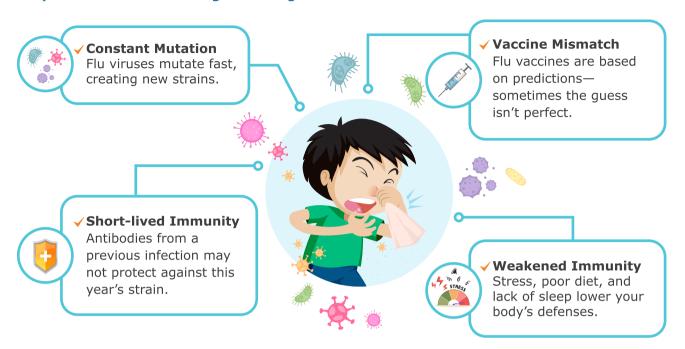


Why the Flu Comes Back Every Year

Unlike chickenpox, a single bout of flu doesn't provide lifelong immunity. This is because influenza viruses are constantly changing, mutating rapidly and producing new strains each year. As a result, prior infection or vaccination may not offer full protection against the circulating version in a given season.

Our immune memory for influenza also tends to fade more quickly than for some other viruses. Combine that with the fact that flu vaccines are based on scientists' best guesses about which strains will circulate in the coming season—and sometimes those guesses miss the mark—and we've got a recipe for annual reinfection. Add in factors like chronic stress, poor sleep, and nutrient deficiencies, and the body becomes even more susceptible to infection.

Why Do We Catch the Flu Again and Again?



The Role of Herd Immunity

Herd immunity occurs when a large portion of a community becomes immune to a virus—through previous infection or vaccination—thereby slowing its spread and shielding those who are especially vulnerable, such as infants, the elderly, or people with weakened immune systems.



A contagious virus can be compared to a lit match: If those nearby are like dry grass, the fire spreads rapidly. But if most are like fireproof bricks, the flame has nowhere to go and quickly dies out. That's what herd immunity does—it blocks transmission by reducing the number of susceptible hosts.

Most flu seasons end not because the virus disappears, but because enough people have been infected and recovered, leaving fewer targets for the virus to infect. However, since influenza viruses mutate frequently, new strains emerge each season

against which the population has little immunity—resetting the cycle. When this natural or vaccine-based immunity is lacking, the protective barrier breaks down, and outbreaks spread more easily.

Why the Flu Can Be Deadly

For most healthy people, the flu is unpleasant but manageable. For others, it can be life-threatening. Age is a major factor—the very young and the very old tend to have weaker immune responses. Chronic health conditions like diabetes, heart disease, asthma, and cancer increase the risk of serious flu-related complications or death, as does being immunocompromised from chemotherapy, organ transplants, or conditions like HIV/AIDS. In severe flu seasons, even otherwise healthy individuals can face complications.

One of the most dangerous complications is pneumonia—a lung infection that causes the air sacs to fill with fluid or pus, making it hard to breathe. It often presents with symptoms like fever, chills, cough (sometimes with phlegm), and fatigue—many of which overlap with the flu. However, pneumonia can usually be distinguished by chest pain when breathing or coughing and shortness of breath that worsens or doesn't go away. In severe cases, it can lead to respiratory failure or even death, particularly in older adults or those with weakened immune systems. Other serious complications include



heart attacks and strokes, triggered by flu-related inflammation, and sepsis—a dangerous condition in which the immune system's response to infection malfunctions and goes into overdrive, causing widespread tissue damage, organ failure, and, in severe cases, death.

Sepsis: The Hidden Killer

Sepsis is a life-threatening condition that occurs when the immune system, instead of responding in a controlled and targeted way to an infection, spirals out of control. It's not about having a strong immune system—it's about the immune system going off course. Think of it like a car speeding downhill without brakes: the immune system, which normally applies just the right balance of acceleration and braking, malfunctions—triggering uncontrolled inflammation that damages the body's own tissues and organs.

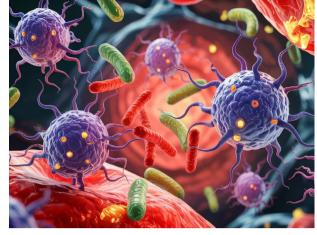
Early symptoms of sepsis can seem ordinary—fever, chills, and rapid breathing—but the condition can escalate quickly. As it progresses, it may lead to confusion, unconsciousness, dangerously low blood pressure, cold or clammy skin, reduced or absent urine output, and organ failure. While sepsis is most often triggered by bacterial infections, severe viral infections like the flu can also cause it. Sepsis is a medical emergency that requires immediate treatment to prevent life-threatening complications.





Cough: Virus or Bacteria?

A lingering cough is often dismissed as just another viral cold—but sometimes, it's a sign of something more. While viruses are the usual culprits behind respiratory infections, bacteria can also be responsible, especially when symptoms are more intense or prolonged. Common bacterial causes of upper respiratory infections include *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *Bordetella pertussis* (which causes whooping cough).



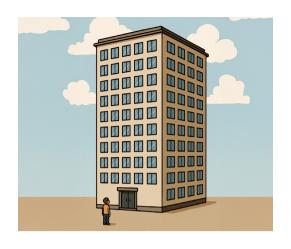
So, how can the difference be identified? Bacterial infections often last longer than 10-14 days and

may come with a high fever, swollen lymph nodes, or a severely sore throat. One helpful clue comes from blood tests: bacterial infections typically cause a rise in white blood cells—especially neutrophils—while viral infections may not. And despite common belief, green or yellow mucus doesn't necessarily mean a bacterial infection—it just shows that the immune system is active. A proper diagnosis depends on the full picture: symptom duration, severity, and, when needed, confirmation through appropriate testing.

Feature	Viral Infection	Bacterial Infection
Duration	7 – 10 days	Often > 10 - 14 days
Onset	Gradual	Can be sudden
Fever	Low-grade or none	High fever, chills
Lymph nodes	Sometimes swollen	Often visibly swollen
Mucus color	Not a reliable clue	Not a reliable clue
White blood cell count	Normal or low; ↑ lymphocytes	Elevated; ↑ neutrophils

Viruses vs. Bacteria

Both viruses and bacteria may cause infections, but they're fundamentally different. Viruses are much smaller—often around 100 times smaller than bacteria—and they can't survive or reproduce without invading a host cell. That's why antibiotics, which target bacteria, don't work on cold and flu viruses.



Bacteria, in contrast, are living organisms that can reproduce on their own. Some species can even survive on surfaces for months, and certain types produce hardy spores that can persist for years. Because of their size and cellular structure, bacteria often respond to antibiotic treatment—though rising antibiotic resistance has made this more complicated.

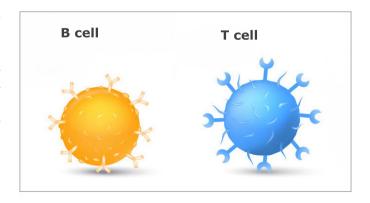
To put their size difference into perspective: If a virus were the size of a person, some bacteria would be like a 10-story building. This scale also reflects how differently they behave in the body and the differences in approaches used to treat the infections they cause.

Feature	Viruses	Bacteria
Size	~20 – 500 nanometers	~200 - 10,000 nanometers
Reproduction	Need a host cell	Can reproduce on their own
Response to antibiotics	No	Yes—but resistance is rising
Survival	Short-lived in sunlight; heat-sensitive	Can survive on surfaces for months

The Power of Immune Memory

Our immune systems are built to remember. After encountering a pathogen (disease-causing virus or bacterium) or receiving a vaccine, specialized cells—known as memory T and B cells—store the "blueprints" to fight that same pathogen more quickly the next time. For some diseases like measles, this immune memory can last a lifetime. For others, like the flu, it fades more quickly and requires repeated exposures or annual vaccinations to maintain protection.

Vaccines train the immune system to recognize and respond to pathogens without causing illness. Some use inactivated or weakened forms of the pathogen, while others—such as mRNA vaccines—deliver genetic instructions that prompt the body to build a targeted immune defense. Most vaccine side effects are mild and temporary, such as fatigue, low-grade fever, or soreness at the injection site. Serious reactions, such as anaphylaxis, are extremely rare.



Putting Risk in Perspective

Despite widespread fears and misinformation, vaccines remain among the safest forms of prevention available. In the United States, the risk of death from a vaccine is approximately 1 in 1 million. In contrast, measles results in about 3 deaths per 1,000 infections.

For perspective, the likelihood of dying in a car accident or even drowning in a bathtub is significantly higher than the risk associated with any vaccine side effect.

Risks in Perspective

Risk of Death (USA Statistics)

Fatal fall 1 in 91

Car accident 1 in 95

Bicycle incident 1 in 3,102

Drowning in a bathtub 1 in 5,975

NSAID/Aspirin 21 – 25 in 1,000,000







Health-Related Risk of Death

From a vaccine 1 in 1,000,000

From measles 3 in 1,000

From pneumonia 5 – 35 in 100





A Microbial World

We live in a world filled with microorganisms. Over 200 viruses are known to cause disease in humans, and at least 1,500 bacterial species have been identified as capable of doing the same. A few hundred fungal species are also known to infect humans. This highlights the vast scope of infectious threats—and how limited our current treatments are in keeping up. Antiviral and antifungal medications are often narrow in scope, virus- or species-specific, and not always effective. Viruses mutate rapidly, antibiotic resistance is rising, and options for treating fungal infections remain limited. That's why prevention—through hygiene, vaccination, healthy habits, and a strong immune system—remains our strongest defense.



Strengthen Immunity Before Illness Strikes

No drug can match the precision and power of the human immune system. While medications play a role in treatment, true resilience begins long before illness strikes. A strong immune system isn't built overnight. It requires consistent, healthy daily habits: eating a diverse, plant-rich diet, getting regular sleep, staying active, managing stress, and maintaining a healthy weight. Even laughter and meaningful social connections contribute to immune strength.

In a world filled with evolving microbes, investing in immune health isn't optional. It's essential.





The Lifelong Learning article is contributed by Dr. EE Zhang, MBChB.

Beyond the Destination, A Personal Transformation



The E. Excel incentive trip is a journey of growth, teamwork, and lasting rewards. It's a challenge worth fighting for. It's difficult, and the process will change you. It's no ordinary trip.

Are you ready to push your limits? Are you ready to rise with your team? Are you ready to reap the sweetest of victories together?

Strength Is Born from the Challenge

The harder the fight, the sweeter the victory.

At the core of the travel incentive is the challenge. By design, it's meant to be demanding.

It's not supposed to be easy—it's supposed to inspire growth. Striving to earn the trip means setting clear objectives and working persistently toward them. Every milestone hit and every obstacle overcome along the way strengthens our professional abilities. Pursuing a tough goal together promotes

planning, cooperation, and collective confidence. We learn to manage our time better, refine our sales techniques, and support one another as a team. By the time the qualification period ends, even those who narrowly miss the target have grown from the attempt. And for those who succeed, the accomplishment is euphoric. Nothing matches the pride of achieving a hard-won goal, knowing we gave it our all. That success doesn't just earn a vacation—it fundamentally boosts our confidence in what we can achieve next.



Most importantly, this process reinforces a culture of excellence. Seeing fellow E. Excellers fighting hard for a goal helps us realize our own potential for growth. Leaders set an example by embracing the challenge and demonstrating resilience and optimism. The travel challenge galvanizes everyone to aim higher. The effort becomes worth it because the rewards are extraordinary.





The People Beside Us

It's not the scenery that stays with us, but the souls we traveled with.

One of the most significant rewards of the trip is standing side by side with our teammates, rejoicing in the success we earned together. The destination may be beautiful, but the people make it unforgettable. Teammates become travel companions, and that shared celebration strengthens our bond in ways nothing else can.

When we're on that trip, clinking glasses at dinner and cheering, we remind everyone that each person is part of something bigger, a collective effort with meaningful results. We're saying, "Look what we accomplished together. We faced the challenge and emerged victorious, as one." That memory becomes a powerful source of motivation for whatever life might throw at us.

By the end of the trip, our travel companions will have truly become our friends. The trip environment, away from daily pressures, lets us interact more freely. Awkwardness flies away on a zipline through the jungle, and we're swapping stories with new E. Excellers by the hotel pool. These moments of human connection are priceless. We get to see more personal sides of people and learn about their humor, families, and dreams.



The E. Excel incentive trip does feature amazing destinations, but ask anyone who's been on one, and they'll tell you their favorite memories revolve around the people: laughing with teammates on the tour bus, hugging each other at the top of a mountain, or simply reflecting together on how far they've all come. These are the moments that remind us why we fought for the challenge in the first place: Success is sweetest when it's shared.

Travel Tales That Spark Dreams

Every story told is a step closer, every moment shared a bond built.

Traveling with a group of E. Excellers means no one is a stranger for long. There's something about sharing a journey that forges friendships fast. The unfamiliar setting and novel experiences often

accelerate bonding. In no time, you're swapping travel anecdotes or learning local phrases together, and conversations flow easily. These new friendships aren't fleeting either. Traveling together creates a special camaraderie that distance doesn't erase. In the months and years after, you'll find yourself reaching out to those friends for advice, collaborating across regions, or just checking in on birthdays. As your personal network grows, so does a sense of connection and support within the company. In a very real sense, each trip expands your circle in the E. Excel family.



These connections have a multiplier effect: they inspire others around you. Travel has a way of making people more relatable, interesting, and approachable. It brings out the best in us, fueling curiosity and open-mindedness. When we step outside our daily routine, we become explorers and adventurers. We might try unusual food or hike to a waterfall. We show our willingness to learn and adapt—qualities that encourage others to step out of their comfort zones. Every photo we show and every story we tell is proof to others that they can win the challenge and do it too.

In this way, the spirit of the travel incentive—the camaraderie, the openness, the inspiration—spreads far beyond just those who travel. It becomes part of E. Excel's culture, raising everyone's enthusiasm. We become a family of people who know the value of connecting with others and who actively nurture those meaningful bonds.

Friendships Without Borders

One world together, one family forever.

One of the most unique and fulfilling aspects of E. Excel's incentive trip is the global community it brings together. E. Excellers are spread across continents, united by the vision of Nutritional Immunology and helping others through health.



Day to day, it's easy to feel like we're working alone in our little corner of the world. The incentive trip changes that profoundly. Suddenly, we're face to face with E. Excellers from different countries, with various languages and cultures. Traveling with international teammates is eyeopening. We hear their stories and perspectives, and it broadens our own horizons. By sharing genuine moments together, we increase our understanding and empathy toward others. We discover that despite our differences, we share



core values and goals, and that realization is powerful: it reinforces why we do what we do. Meeting so many others around the globe who are pursuing the same mission of Nutritional Immunology is living proof that our work matters universally. It bolsters our determination and pride in being part of something that transcends borders. We return home with a renewed sense of purpose, committed not only to ourselves but on behalf of this entire worldwide team.

The friendships formed become an ongoing source of support and trust. When you know someone personally, collaboration becomes easier. Need advice on entering a new market? You now have a friend in that country to call. This international network is an asset in itself, both professionally and personally. It gives us strength today and lays a foundation for the future. Who knows when a connection from the trip might open a door, offer a crucial insight, or be there as a friend during a tough time?

The sense of global family also creates a legacy. In a way, each incentive trip strengthens our "worldwide immune system"—a network of knowledge, trust, and friendship that keeps us resilient. The next generation in E. Excel inherits not just a business, but a rich web of human relationships across the globe. We're from all walks of life, but we're united in vision and values. Together, we prove that what unites us is far greater than what separates us. We're one big family.



Travel Strengthens the Brain

Travel builds new pathways in our brain, helping us think faster, better, and more clearly.

Earning a spot on the E. Excel trip is an investment in our own mental and physical well-being.

Neurologists describe travel as a natural booster for the brain's "cognitive reserve," which is our mind's ability to improvise and stay resilient as we age. Think of cognitive reserve like a personal mental library filled with knowledge and experiences. Every experience on a trip adds another "book" to our mental library and forces our brain to form new neural connections and pathways. For example, reading signs or navigating foreign streets hones our visual-spatial abilities, learning greetings in another language or absorbing historical facts engages our memory and language centers, and



solving problems on the fly employs our executive function and problem-solving skills. The more "books" we stock on our mental library shelves through learning and exploration, the more resources our brain can draw on when faced with life's challenges, keeping our brain dynamic and nimble.

Expanding our mental library now is critical to protecting our future. Research has shown that those with greater cognitive reserve can stave off symptoms of Alzheimer's or other dementias longer, even if physical brain changes occur, because their brains have more "backup" pathways to compensate. The more we challenge and enrich our brains now, the healthier and more robust they'll be later in life. Travel is one of the most potent contributors to building cognitive reserve; it's a serious brain workout of the most enjoyable kind.





Travel also has measurable benefits for mental health and stress reduction. Breaking out of your routine and immersing yourself in a vacation can reset your stress response. Experts note that travel reduces cortisol (the stress hormone) and can improve mood for weeks or months afterward. Part of this comes from the relaxation and fun, but a part also comes from the renewed perspective travel gives you. Problems back home often seem smaller or more surmountable after you've had time away to recharge. Just as muscles recover and grow stronger after rest, your mind comes back from travel clearer and bursting with fresh ideas. It's no coincidence that those "A-ha!" moments in problem-solving often happen after some time away. By giving your brain a diverse array of stimuli and then time to idle, travel sparks creativity and insight.

Let's not forget physical health: incentive trips often involve a lot of movement—walks, swims, hikes, and dances. Physical activity combined with reduced stress can strengthen your immune system and cardiovascular health. Furthermore, while an incentive trip is brief, it might just kick-start healthier habits (like daily walks or trying new foods) that you carry on afterward.

Traveling is a win-win for our health. Each journey makes us sharper, more creative, and more versatile—assets that will fuel our success long after the trip is over. E. Excel isn't just rewarding us with a vacation; it's helping us invest in ourselves in a way that few other rewards could match.

Worth Fighting For

The E. Excel travel incentive trip is a microcosm of everything we strive for as a team and as individuals. The challenge pushes us to set ambitious goals and achieve new heights, proving to ourselves that we can overcome obstacles through dedication. The journey itself bonds us with our teammates—we celebrate, laugh, and grow closer, forging an unbreakable team spirit that carries into our work. The connections we make strengthen our big family, one that is globally diverse yet unified by a shared mission and mutual support. And the



experiences enrich us deeply, expanding our minds, boosting our health, and inspiring us to approach life and work with fresh enthusiasm.

For E. Excel, whose mission centers on improving lives through Nutritional Immunology, it's fitting that our reward enhances our lives in return—strengthening our bodies, minds, and social bonds. As we look ahead to the next travel challenge, let's remember what's at stake. Not a stay at a luxury resort or a stamp in our passports, but the shared victory of our team, the memories with our E. Excel family, and the knowledge and vigor we'll gain for ourselves. These trips remind us why "the harder the fight, the sweeter the victory" rings true. The rewards are richer than any paycheck or trophy; they're measured in personal transformation and collective pride.

If you're on the fence about pushing for the next incentive trip, consider this your call to action. Embrace the challenge wholeheartedly. Encourage your teammates, set those big goals, and give it your all. The fight will forge you into a stronger professional, and the victory will taste sweeter than you can imagine when you're reveling in that dream destination, surrounded by friends and celebrating what you've accomplished together. That is the true pinnacle of E. Excel's incentive trip—the journey of who you become, and the bonds with those you stand beside. And that's absolutely worth fighting for, every step of the way.



The Professional

Development article is

contributed by Elei Zhang, JD.

Editor's note: Headlines that start with "Researchers found..." or "Doctors say..." often sound convincing—but not every study is solid or ready for real-world use. For this article, we invited Dr. EE and Elei to share their insights from both science and law, to help readers spot the difference between reliable health information and misinformation.

How to Tell Real Health Information from Misinformation



These days, we're constantly flooded with health advice—some of it sound and science-based, and some of it misleading or outright false. Knowing how to differentiate real health information from misinformation can literally be life-saving.

Misinformation can sound convincing when it comes from someone with a title, such as a doctor or a government official. But credentials don't guarantee accuracy. For example, a prominent government figure in the U.S. has led people to believe that vitamin A treats measles and vaccines are unsafe



despite overwhelming scientific evidence to the contrary. When people say, "There's research showing vaccines cause autism," we should ask, "What kind of research?" because not all research can be trusted.

We've to understand that scientific knowledge isn't a single voice but a collective, built through evidence and scientific consensus. What matters is how the research was conducted and whether other experts have reviewed and confirmed it. So, how do we separate fact from fiction, especially when our health and our family's well-being are at stake?

The Importance of Scientific Consensus

When thousands of studies have been done on a topic and the vast majority of experts agree on the results, that agreement forms a scientific consensus. Scientific consensus isn't "whatever most scientists feel like thinking"—it's based on a large body of robust evidence that converges on the same conclusion. For example, there's a strong consensus that vaccines don't cause autism. This conclusion was reached after many studies compared vaccinated and unvaccinated children and found no difference in autism rates.





Consensus matters because it indicates that an idea has survived repeated scrutiny and attempts to disprove it. When an idea holds up, it isn't supported by just one person—it's accepted by the broader scientific community, including researchers, medical societies, respected journals, and international organizations such as the World Health Organization (WHO).

Science evolves, and new evidence can refine or overturn what we once knew. But genuine shifts in consensus require firm, consistent new evidence from many researchers. People pushing misinformation often try to undermine consensus by cherry-picking the few outlier studies or fringe opinions that disagree. Don't be fooled. If a claim goes against a well-established consensus, you should be very skeptical.

Science isn't a secret club. It relies on open debate, independent review, and worldwide collaboration. Trustworthy health advice reflects the shared conclusions of experts across countries, not the lone opinion of one loud voice.

Real Science Can Be Repeated

A hallmark of reliable science is reproducibility. In the process of building scientific consensus, after one team publishes a finding, other scientists should be able to follow the same methods and get similar results. That's why reliable findings aren't based on a single study, but supported by multiple studies pointing in the same direction. It's also why you'll often hear scientists say things like "more research is needed"—they want to see if the result holds up in further studies.



Think of it like baking: If a recipe is good, anyone should be able to follow it and bake the same cake. But if only one person gets it right and no one else does, the result might be a fluke, a mistake, or even a fraud.

When evaluating a health claim, ask: Has this been tested more than once? Have independent teams gotten the same results? If the answer is no, be cautious.

Peer-Reviewed Journals: Gatekeepers of Quality

Not all studies are equal. One major quality checkpoint in science is peer review. When a reputable peer-reviewed journal receives a research submission, the editors send it to other experts who scrutinize the study's methods, data, and conclusions. The process is often rigorous, sometimes requiring authors to conduct additional analyses or experiments before acceptance. Only if the study meets specific standards will it be approved for publication. Peer-reviewed journals, therefore, filter out poor or unverified science before it reaches the public. Peer review isn't perfect, but it means the work underwent critical



evaluation by other experts. Information from established medical journals, such as *The Lancet*, the *New England Journal of Medicine*, and *The BMJ*, among others, is far more reliable than something from an unreviewed source.

In contrast, some studies are published in low-quality or predatory journals that lack proper peer review (for example, simply paying a fee to guarantee publication). Other studies are shared on personal blogs, podcasts, or social media, or self-published on someone's website. These studies often bypass scientific scrutiny and should not be trusted.

When looking at health information, check if articles in peer-reviewed journals support the claims. If someone cites a study from a predatory journal or one that isn't peer-reviewed, be cautious.



Not All Sources Are Trustworthy

A health claim from the WHO carries more weight than the same claim from a random social media influencer. Government agencies, academic institutions, medical societies, and peer-reviewed journals are more credible; they often have editorial review processes and expert input.

Be cautious with bold claims made by a single health professional, no matter how confident or credentialed they seem. One voice, even with a medical degree or government affiliation, is not the same as scientific



consensus. The same goes for celebrities and influencers. Popularity doesn't equal credibility.

Trust evidence-based sources with a track record of accuracy. If you're unsure, cross-verify the information with a reliable source. Real science is built on consistent, repeatable evidence, not on one voice, viral posts, or fame.

Beware of Unapproved "Breakthrough" Treatments and Clinics That Hype Them

Headlines or social media posts often hype dramatic breakthroughs: curing diabetes or reversing spinal injuries. These early findings may sound revolutionary, but they're often years away from real-world application.





Some clinics cash in on the buzz, using phrases like "groundbreaking therapy" or "early discovery," and market treatments such as placental extracts, NAD⁺ drips, or high-dose vitamin C infusions—claiming to reverse aging, whiten skin, or darken gray hair. They often make false assurances and exaggerate benefits while downplaying risks. Some clinics even sell stem cell "rejuvenation" shots or stem cell treatments for everything from joint pain to neurological diseases. But these therapies have no established efficacy and are not approved medical treatments.

True medical treatments undergo proper clinical trials and gain regulatory approval (such as FDA approval in the U.S.) before being widely offered. If a clinic offers an unapproved treatment and justifies it with hype rather than solid evidence, it's a huge red flag.

When considering a treatment, always ensure it's approved by relevant health authorities for your condition.

Industry-Funded Research and the Potential for Bias

Industry-funded research, such as studies sponsored by cattle associations or food industry groups, may be biased. This doesn't mean all industry-funded studies are false or useless; many are well-conducted. But on the whole, evidence shows that when an industry foots the bill, the results tend to align with the sponsor's interests.



For example, research funded by dairy industry groups is significantly more likely to report favorable outcomes regarding dairy consumption and its impact on health. Such studies may highlight benefits such as improved bone density or reduced risk of certain diseases, while minimizing or omitting data from independent research that might show neutral or negative effects of high dairy intake.

When reading about a health finding, consider who funded the study and check whether independent research shows similar findings.

When multiple high-quality studies from different sources point to the same conclusion, that's far more convincing. Otherwise, stay skeptical.

The Limitations of Personal Anecdotes in Establishing Truth

"My aunt drank this magic potion and her arthritis went away!" "I used this diet and never got sick again!" Personal anecdotes can be compelling and emotionally resonant. However, scientifically, they're one of the weakest forms of evidence.

A potion that seems to help one person doesn't mean it actually worked or that it'll work for others. The effect could be a coincidence, a placebo, or something else entirely. Anecdotes can support science but cannot replace it. We still need structured studies, tests under controlled conditions, and results of statistical significance that're real, measurable, and repeatable.

If someone shares a personal story backed by strong research, that can be helpful. But if all they can offer is a personal story, take it with a grain of salt.





Ancient Remedies and Traditional Medicines: A Balanced Perspective

Humans have been treating illnesses with herbs, roots, and assorted remedies for millennia, long before modern pharmaceuticals. Traditional medicine is ingrained in many cultures, and some remedies do work. Aspirin was developed after the discovery that willow bark (used in folk medicine) contains a compound that relieves pain. The discovery of the antimalarial drug artemisinin, derived from an ancient Chinese herbal remedy, was awarded the Nobel Prize in Physiology or Medicine.



However, ancient usage does not guarantee safety or efficacy. Old does not automatically mean effective. For example, scientists have found that some herbs used in traditional Chinese medicine contain toxins or heavy metals, some Ayurvedic preparations cause lead poisoning, and practices such as bloodletting to "balance health" or using mercury for longevity are harmful.

The key is research. It's important to respect traditional medicine; however, we should also evaluate it with modern tools to understand what works, how it works, and whether it's safe.

Science doesn't reject tradition—it helps refine and validate it. When someone claims a formula is effective because it's been used for centuries, ask: Is there scientific evidence to back it up? Tradition is a starting point, not a guarantee.

Red-Flag Claims: "Cure All," "Secret Cure"

Health misinformation often uses telltale phrases that promise too much, play on fear or conspiracy, or use sensational language. Classic red flags include:

- "Miracle cure" / "Cures all diseases" / "Quick fix"

 Diseases are vastly different from one another, and no legitimate health expert will claim that a single product cures everything.
- "What doctors don't want you to know" / "Secret remedy" / "Big Pharma is suppressing this"

This feeds into the idea of a medical conspiracy—that doctors or "Big Pharma" are hiding cures. Scammers use this line to make you feel you're getting insider knowledge or to sow distrust so you'll buy their products. But real medical breakthroughs are shouted from the rooftops, not kept secret.





- "Breakthrough" / "New discovery" (without specifics)
 Legitimate breakthroughs are published in peer-reviewed journals. If you just see the word
 "breakthrough" in marketing copy, be cautious.
- "Ancient remedy" / "Natural cure" /
 "Traditional secret"
 Ancient does not equal effective.
- Absolute language: "100% safe" /
 "Guaranteed results"

 Medicine is nuanced and rarely absolute.
 Emotional triggers: "Doctors are killing you
- with toxic drugs!"/ "This pill could save your dying child! Don't wait!"

 Scammers rely on getting you emotional so you act fast without rational scrutiny. Messages that say "Act now or else!" should make you pause and apply critical thinking.



"Natural" Doesn't Mean Safe

"Don't worry, it's all-natural!" There's a widespread assumption that if something comes from nature, it must be safe or have few side effects, whereas "chemicals" and human-made substances are automatically dangerous. This is a myth. Natural does not equal safe, and synthetic does not equal evil. The world isn't that simple.

Some of the deadliest poisons known are completely natural. Cyanide is found in certain fruit seeds. Arsenic is a naturally occurring element. Snake venom is natural. Poisonous mushrooms that can kill you in a day are natural. Many plants can cause severe illness or allergic reactions. For example, poison ivy causes a nasty rash. Ephedra is a plant traditionally used for nasal congestion and bronchitis, but it can also cause high blood pressure, heart attacks, and strokes, and has been banned in several countries.

"Natural" is not a magic shield of safety. Respect that natural substances are still chemicals with powerful effects—good or bad. Choose products based on demonstrated safety and efficacy.





Why We Don't Need Scientific Proof to Eat Fruits, Vegetables, and Mushrooms

A diet rich in whole plant foods is one of the best things you can do for your health.

When we buy produce, we don't demand research before picking up an apple or a head of broccoli, and we don't stop to question the benefits of spinach or mushrooms. This isn't because fruits and vegetables lack scientific backing, but because their safety and benefits have been well-established through decades of research and rigorous science.



The evidence consistently links diets emphasizing plant foods to better health outcomes: living longer and having lower risks of heart disease, cancer, and other chronic diseases, and overall mortality. For example, consuming "5-a-day" (around 5 servings of fruits and vegetables daily) is associated with greater longevity and a reduced risk of chronic diseases.

Importantly, the evidence is vetted by consensus: health authorities and

research institutions worldwide—from the WHO to national dietary guidelines—all recommend fruits and vegetables as a foundation of healthy eating.

In a world full of conflicting advice, this is one point of solid agreement: Focus on real, whole plant foods that nourish the body. The evidence is so abundant and consistent that we don't need to question it every time we eat fruits and vegetables.

The Bottom Line: Trust Science, Not Hype

The strength of modern science comes not from any one person's opinion, but from a method that constantly questions, tests, refines, and evolves.

We must weigh evidence over anecdotes, consensus over charisma, and caution over clickbait. We must trust the process of science itself. By doing so, we empower ourselves to make decisions based on facts and likelihoods, not on fear or false promises.

Misinformation is everywhere—critical thinking is your strongest shield.



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Knowledge is power. Knowledge is instrumental to value-creation and is a critical asset in life. It is in many ways the primary instrument of progress and innovation. However, knowledge can be messy, particularly when false. Today, information spreads rapidly and comprehensively, and websites and social media outlets are easy access points for false information.

We're here to help discern fact from fiction. Knowledge becomes powerful in the right culture—collectively sharing in the truth and continually seeking progress and ideas. Building the right knowledge base is neither a short-term effort nor a one-off project. It is a lifelong process of discovery.

The Organic Hype



When we see the word "organic," most of us feel reassured. It seems like the better choice—healthier, safer, and more ethical. We picture fresh produce untouched by chemicals, happy animals roaming the fields, and food grown as nature intended. But the reality behind the organic label is far more complex than the feel-good image we have been sold.

To begin with, the term "organic" must be certified—but certification standards vary significantly from country to country. Still, it is better than unregulated terms like "natural,", "eco-friendly," or "sustainable," which sound appealing but have no legal definition and certification requirement. Even so, before paying more for that organic label, it is important to understand what it does—and does not—mean.



Organic ≠ **Pesticide-Free**

One of the biggest misconceptions about organic food is that it is grown without pesticides. That is not true. Organic farms do use pesticides—just not synthetic ones. Instead, they rely on pesticides derived from natural sources, like plants, minerals, or microbes.

What does "natural" really mean? We often associate it with being gentle and plant-based. In reality, "natural" simply means it exists in nature—it could come from a plant, an animal, or a microbe. It is not synthetically made. But that does not mean it is harmless or healthy.





Consider monkshood, a natural plant that is highly toxic. Or tobacco—a natural product with well-known health risks. Even microbes can produce deadly substances. *Clostridium botulinum*—a natural microbe—produces botulinum toxin, one of the most lethal substances known. Just one gram could kill over a million people! (Fun fact: Botox is derived from botulinum toxin type A.)

So while "natural" may sound comforting, natural pesticides are not inherently safe. In fact, some can be harmful at high levels, just like synthetic pesticides. Worse, because some natural pesticides are less effective, organic farms may apply them more frequently or at higher concentrations.

Risks of Organic Pesticides

Pesticide exposure—organic or synthetic—can be harmful in large amounts, especially for farm workers and the surrounding environment. Some commonly used organic pesticides include:

- Copper sulfate—A mineral pesticide toxic to aquatic life and linked to liver and kidney damage in humans.
- Neem oil—Plant-derived, but potentially harmful if ingested, particularly by children.
- Rotenone—Extracted from plant roots and banned in several countries due to its toxicity and links to Parkinson's-like symptoms.
- Bacillus thuringiensis (Bt) and spinosad—Bacterial pesticides that can irritate skin, eyes, and the respiratory tract.







The Dose Makes the Poison

At this point, you might wonder—if even organic produce can carry pesticide residues, is anything truly safe to eat?

It is true that some reports link pesticides to health risks, including cancer, which understandably causes concern. Some people go to great lengths to avoid exposure—peeling every fruit, soaking produce in vinegar, baking soda, or even soap. But before you panic, here is some important context: Pesticides are regulated.

While regulations differ by country, the Food and Agriculture Organization of the United Nations (FAO) and World Health Organization established the *International Code of Conduct on Pesticide Management*. Most health risks from pesticides arise from direct exposure—such as during handling or spraying—not from eating trace residues on produce.

The greatest danger comes from long-term, high-level exposure to pesticides, particularly for agricultural workers. These workers can also unknowingly bring pesticide residues home on clothing or shoes, potentially exposing their families to health risks associated with pesticide exposure. Even home gardeners who use pesticides without protective gear like gloves or masks can face similar risks.

Yes, there is still room for improvement in how we grow food and control pests safely—but perspective matters. Recognizing the risks without overreacting is key.



Do Not Fear Your Fruits and Veggies

Despite the concerns, the health benefits of eating fruits and vegetables far outweigh the risks of trace pesticide residues. These foods are rich in fiber, vitamins, and disease-fighting plant compounds. Simply rinsing produce under cold running water removes most dirt, bacteria, and even some pesticide residues.

The bigger health risk is not what is on fruits and vegetables—it is not eating enough of them.

Pesticides Beyond Produce

Pesticide exposure is not limited to fruits and vegetables. It is a broader issue that affects meat, dairy, and seafood due to bioaccumulation—the buildup of toxins as you move up the food chain.

Many pesticides are fat-soluble. When animals consume pesticide-contaminated feed or animal by-products, the pesticides can accumulate in their fat. As a result, pesticide residues may be present in meat products such as beef, pork, and poultry.

Dairy products such as milk, butter, and cheese can also carry pesticide residues because they contain fat, which acts as a storage site. And it is not just pesticides—hormones, antibiotics, and other veterinary drugs can be present too.





A label that says "hormone-free" simply mean no additional hormones were given to the animals—it does not mean the product contains no hormones. Animals, like humans, naturally produce hormones.

Seafood brings its own challenges. Ocean fish can accumulate mercury, and freshwater species may be exposed to agricultural runoff containing pesticides and pollutants.

What "Organic" Really Means in Skincare

In beauty and skincare products, "organic" usually means some ingredients were grown using organic methods—but it does not mean the entire product is organic.

So here is the question: Are organic ingredients really safer? Our skin is a protective barrier, shielding us from most chemicals, viruses, and bacteria. In skincare, "organic" does not automatically mean safer. What matters more is the manufacturer's transparency and rigorous safety testing. For example:

- Talc, a common ingredient in powders, can be contaminated with asbestos.
- Heavy metals like lead and mercury are far more concerning than any trace pesticide residue.

Unfortunately, many countries lack strict regulations on contaminants in cosmetics.



Also, do not be misled by marketing terms like "natural," "green," or "clean." These words are not regulated and have no standardized definitions, so they can mean almost anything. For example, "green" might refer to the ingredients—or the eco-friendly packaging—without saying much about the product itself.

What Matters More Than the Organic Label

Do not let fear of pesticides keep you from your greens. In an imperfect world, eating more plants—organic or not—is one of the best things you can do for your health.

There is no solid scientific evidence that organic food is consistently more nutritious than conventional food. Nutrient content depends more on soil quality, the specific plant variety, and harvest timing than on whether the crop is grown organically or conventionally.



What is clear: Fruits and vegetables are packed with

fiber, antioxidants, and phytochemicals that support your immune system and help protect against chronic diseases like heart disease, diabetes, and certain cancers. Eating more plant foods also helps your body cope better with environmental stressors—whether it is air pollution or pesticide exposure.

At the end of the day, what matters is not whether your apple is organic. What matters is that you eat the apple.

Simple Tips for Safer Eating

Eat a colorful variety of fruits and vegetables. Different fruits and vegetables offer different nutrients. Rotating your choices also helps reduce exposure to any single pesticide.

Choose fresh, undamaged produce. Trim off bruised or blemished spots.

Store properly. Refrigerate berries, leafy greens, and cut fruits to maintain freshness and safety.

Wash well. Rinse under cold running water before eating. Use a brush for firm produce like melons or squash.





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