Zen Meditation and Nutrition

A MODERN PERSPECTIVE

Phuong T. H. Nguyen

With gratitude
to the Buddha,
to Zen Master Thích Nhất Hạnh,
to other Zen masters,
to scientists around the world,
and to all those who,
through circumstance,
have helped cultivate my heart and mind
over many years of learning
and meditation practice.

May this book, in turn,
likewise benefit
those who are lost,
suffering,
or seeking themselves,
as I once was …

Phuong Truong Ha Nguyen
Author

April 09, 2026
Revision: April 16, 2026

Mountain Breath Retreat, Da Chong Hamlet
Yen Binh Commune, Lao Cai Province 321940 Vietnam
Email: nguyentruonghaphuong@gmail.com
Website: amnuitho-mountainbreathretreat.com

Table of contents

CHAPTER **PAGE**

ZEN MEDITATION

NUTRITION

APPENDIX

Zen Meditation

1. The origin of Zen meditation

The origin of Zen meditation can be traced to the Brahmin contemplative practices in India, predating the time of Siddhartha Gautama, the Buddha. Owing to its formless and experiential nature, Zen has long been difficult to grasp and is often misunderstood by beginners. Even the Buddha himself underwent nearly six years of arduous and unproductive practice before attaining enlightenment, at which point he discovered an effective way to observe, transform, and ultimately free himself from psychological suffering and internal obstacles.

To help future generations avoid the difficulties he encountered, the Buddha devoted the remaining forty-nine years of his life to teaching and establishing a living tradition of Zen practice that continues to this day. His subtle and invaluable insight was first transmitted to the Venerable **Mahākāśyapa**, then to the Venerable **Ānanda**, and has since been passed down through countless monks and Zen practitioners around the world. For the sake of convenience, the term *Zen meditation* will hereafter be referred to simply as *Zen*.

Drawing on scientific knowledge and the successful experiences of many Zen practitioners, this book seeks to set aside religious, mystical, or unscientific interpretations that have accumulated through generations of misunderstanding and presents this ancient yet profound discipline from a clear, realistic, and modern perspective.

2. Two aspects of Zen

Zen consists of two distinct yet complementary core aspects, both essential to complete practice:

1. **A genuine and thorough understanding of oneself, others, and life**

2. **Real-time observation of the body and mind (self-awareness)**

A thorough understanding loosens and resolves underlying psychological knots—such as conflicts, hindrances, and misconceptions—thereby freeing the mind. Self-awareness, by contrast, enables effective moment-to-moment self-regulation. It helps practitioners recognize and manage mechanical or obsessive behaviors, subconscious attachments, and instinctive reactions that tend to draw the mind back into habitual and unhelpful patterns of thinking.

A practitioner may attain one aspect before the other, but until both are mastered, one's understanding remains incomplete and unstable, even though progress in one aspect often supports and accelerates progress in the other. For example, practitioners who master the technique of observing the body and mind but lack a genuine and thorough understanding will remain bound by forms of ignorance or illusion. Over time, they are likely to encounter new psychological conflicts or obstacles that must be examined and resolved before full awakening is possible. Conversely, those who have developed deep understanding but lack consistent real-time self-awareness may occasionally fall back into harmful habits or extreme views. During such moments, they may come under the influence of previously ingrained patterns, which—if prolonged—can lead to undesirable or even irreversible consequences. At the same time, these lapses can serve as valuable signals, revealing areas that require further refinement and helping to accelerate the development of effective body-and-mind observation. With continued practice, this integration allows clarity to be maintained in a more continuous, subtle, and stable manner throughout daily life.

3. The ultimate happiness

Our bodies are shaped according to formulae encoded in our parents' DNA. These formulae determine the basic structure of our faces and bodies, as well as our health conditions, traits, and aptitudes, from birth to death. Over time, our individual circumstances, willpower, and life experiences further contribute to changes in both body and mind, enabling adaptation for survival and the optimization of living conditions toward greater comfort and happiness.

Under the multifaceted stressors of life, the human species has surpassed all others in rational capacity and, as a result, has undeniably come to dominate the Earth. However, this rapid yet unbalanced development of the rational mind has also inadvertently created serious problems, undermining our original goals of survival and happiness. Despite clear advances in survival skills and relative success in the pursuit of material well-being, many of us continue to drift through life without direction, even when it comes to fulfilling basic psychological needs such as peace, joy, freedom, and kindness.

Considerable effort, along with numerous externally imposed rules and laws, is devoted to safeguarding fundamental human rights to freedom and happiness. Yet the vast accumulation of knowledge to date has not succeeded in bringing true peace, happiness, or freedom to most people. We live not much differently from biological machines. Despite possessing increasingly sophisticated abilities, knowledge, data, and "software," and becoming ever more capable and versatile, we remain largely slaves to—rather than masters of—our own minds.

Moreover, because knowledge is often accumulated in a fragmented manner, without sufficient processing or integration into our mechanisms of judgment, inner conflicts arise and become the source of much human suffering and psychological stagnation. Resolving these conflicts to achieve inner coherence and, to some extent, mastering the knowledge necessary to govern both body and mind can become a profound source of happiness—one that Zen practice can offer to anyone, regardless of wealth, education, abilities, personality, or health (with certain exceptions, such as individuals with severe mental illness or brain disabilities).

This represents the highest form of happiness—referred to in Buddhism as self-liberation—capable of transcending all other forms of happiness, which are inherently conditional, and of resolving all common forms of human psychological suffering.

4. Knowing oneself

Most of us are already skilled at observing the outer world—that which exists or occurs outside our bodies and minds. From birth through adulthood, we are primarily trained by our families, schools, and society to perceive and engage with the world through the five senses, such as in accumulating knowledge, socializing, receiving an education, enjoying music, appreciating art, developing tastes, and experiencing love. Rarely, however—and often never—are we taught to observe our inner world, namely our bodies and minds. As a result, we tend to know ourselves mainly through memory or through external and social reflections, rather than through direct, real-time self-observation. This helps explain why we so often pursue and become attached to the outer world—such as material possessions, social status, fame, and controversy—and equate these with our life goals, even though we may know at a deeper level that they are impermanent and superficial. Instead of exploring the internal wealth of sustainable happiness and profound wisdom within us, we remain outwardly focused. This imbalance between awareness of the outer and inner worlds has produced many avoidable psychological consequences, collectively experienced as human suffering.

To address this imbalance, Zen offers a method of continuous, concurrent, and inclusive observation, in which the breath serves as a bridge between the inner and outer worlds. In this approach, the observing mind and the observed phenomena, which include the outer world, the breath, and the body, thoughts, emotions, and feelings, are simultaneous, continuous, and integrated processes, rather than as separate or independent elements—the observer and the observed are one. Once this mode of observation is grasped, it can be sustained throughout most daily activities. Even when we temporarily drift into distraction, delusion, or anger, balance and self-awareness can be restored within moments, thereby minimizing potential harm. This method of observing body and mind will be explored in greater detail in later chapters.

5. Zen and energy management

Apart from automatic activities—such as regulating internal organs, coordinating hormones, and maintaining other biological functions—the brain engages in two additional primary modes of activity throughout the day, except during sleep: cognitive tasks and associative tasks. While the brain can perform many associative tasks simultaneously (for example, talking while walking or playing the piano with both hands), a cognitive task can occur clearly and effectively only when thinking—also an associative activity—subsides. For instance, if we look at an object while thinking about something else, our eyes may rest on the object, yet we may not truly see it. The same principle applies to other cognitive senses, including hearing, smelling, tasting, touching, and awareness itself.

When practicing Zen in daily life—that is, simultaneously observing the breath, body, mind, and outer world—we naturally reduce the stream of unnecessary thoughts, emotions, and movements that arise throughout the day. This reduction conserves a substantial amount of mental and physical energy that would otherwise be wasted. The conserved energy can then be redirected by the body toward more beneficial functions such as immune response, physical development, learning, creativity, and productive work, thereby enhancing overall health, quality of life, and longevity. Zen practice also significantly improves productivity by cultivating sustained focus, mental clarity, and efficient use of energy.

6. ATP, ADP, and depression

Our body's cells use adenosine triphosphate (ATP) as their primary source of energy. When we wake each morning, our ATP levels reflect the physical and mental activities of the previous day—and sometimes even earlier periods. As ATP is consumed, it is converted into adenosine diphosphate (ADP), which must be recharged back into ATP in order to supply further energy.

ATP is most effectively replenished during periods of rest and sleep. As energy reserves decline toward the end of the day, the body naturally activates signals of fatigue and rest (depression mechanism), prompting us to slow down, disengage from activities, and prepare for sleep. With a balanced diet and healthy lifestyle, a well-rested night—typically around eight hours—can restore ATP levels, reduce fatigue signals, and allow us to wake feeling refreshed and ready to begin a new day.

From this perspective, depression can be understood as a protective mechanism aimed at preserving life and conserving energy, rather than as an inherently negative state of health. It becomes problematic primarily when it turns chronic, often due to prolonged exhaustion of ATP reserves, at which point the body's natural ability to disengage and recover is impaired. In the absence of such protective mechanisms, energy reserves would continue to be depleted, ultimately threatening survival.

One contributing factor to chronic depression—frequently associated with sleep disorders—is persistent immersion in excessive thinking, negative emotions (such as melancholy or hostility), or psychological blockages. These patterns can be gradually addressed and, over time, resolved through Zen practice.

7. Zen and telomerase

In 2009, the Nobel Prize in Physiology or Medicine was awarded to three scientists—Elizabeth H. Blackburn, Carol W. Greider, and Jack W. Szostak—for their discovery of the telomerase enzyme, which maintains and extends telomere sequences at the ends of DNA strands, thereby protecting genetic material. Greater telomerase activity allows telomeres to remain longer, enhancing genomic stability and reducing the likelihood of harmful mutations. Because DNA mutations can lead to the development of cancer, longer telomeres are generally associated with a lower risk of cancer and, consequently, increased life expectancy.

Stress and prolonged depression are known to accelerate telomere shortening. Here, stress refers not only to psychological stress but also to biological and physical stressors, including illness, poor or insufficient nutrition, environmental pollution, overwork, poverty, prolonged hardship, obesity, and addiction. Research conducted by Elizabeth H. Blackburn and other scientists has shown that mindfulness-based practices can help preserve—or even increase—telomere length by reducing psychological stress and depressive states. From this perspective, telomerase may be viewed as a biological link connecting stress, cancer, and longevity.

On the other hand, stress has also contributed to the adaptation and evolution of all species (including humans) to where they are today, by causing DNA mutations or epigenetic changes (turning genes on or off) in beneficial directions. This suggests that, when positive and kept within healthy limits, stress is not only beneficial but may also be essential for survival and development. Examples of positive stress include physical training, learning, embracing challenges with a healthy mindset, and pursuing meaningful yet attainable goals.

With its emphasis on conserving energy and cultivating clear, integrated awareness, Zen practice can help individuals develop accurate and balanced judgment in each life situation. This, in turn, allows for the minimization of harmful stress while transforming appropriate challenges into opportunities for growth, excellence, and evolution.

8. Emotion and rationale

The evolution of the brain began with the brainstem (including the pons and medulla), which is responsible for regulating vital bodily functions and controlling internal organs. The limbic system (including structures such as the hippocampus and amygdala), which governs emotions, emerged later—approximately 250 million years ago. This development laid the foundation for the subsequent evolution of the cerebellum, cerebral cortex, and neocortex over the past 200 million years. During this period, the rational mind gradually emerged and has continued to evolve through judgment, language, thought, information processing, knowledge, ideology, civilization, culture, science, and even Zen.

This evolutionary sequence shows that emotions—including love, hatred, greed, anger, fear, and similar impulses—appeared roughly 50 million years earlier and were solely responsible for the survival of many species before rationality emerged. Since then, the rational mind has developed to complement emotional processes. To fulfill this role effectively, rationality has had to generate perspectives and strategies that are often different from, or even opposed to, emotional reactions—approaches that are expected to be wiser, more effective, and safer in preserving and enhancing life. For example, in the face of danger, the emotional mind typically responds through fear-driven escape or anger-fueled confrontation—the classic "fight or flight" response. In contrast, the rational mind can devise a broader range of options, such as negotiation, diplomacy, strategic planning, or political solutions.

However, despite the increasing sophistication of rational thought, it cannot fully escape the influence of emotion, because emotions preceded rationality and formed the very foundation upon which it developed. When we examine the products of human rationality—from remarkable achievements in science, medicine, culture, and social organization to the devastating consequences of war, violence, legal conflict, and deception—we find that their underlying motives consistently originate from emotional forces such as kindness, love, passion, ambition, malice, greed, and anger. Thus, even after 200 million years of evolution, rationality, despite its apparent dominance, remains profoundly governed by emotional motives. This suggests that the motives underlying our actions are more significant than the actions themselves, as they reveal our true goals and therefore deserve greater attention.

With the capacity to observe and regulate both rational thought and emotional activity, Zen—understood as a relatively recent refinement of rationality that is consciously cultivated and integrated into our life skills—can help us more accurately discern the true motives behind our own actions and those of others (as will be discussed in later chapters). This clarity enables the development of safer, more effective, and more appropriate responses in any situation. Furthermore, through its comprehensive and integrated perspective, Zen practice can gradually transform negative emotional patterns, allowing the motives behind our actions to become increasingly positive and beneficial, thereby reducing harm and promoting greater well-being for both ourselves and others.

9. Joy and pain

Joy and pain, which function respectively as the “carrot” and the “stick,” are fundamental components of our emotional lives. Our bodies reward us with joy when we engage in behaviors perceived as beneficial to life and punish us with pain when we do not. However, because emotions cannot accurately perceive reality on their own, the rational mind must exert a reasonable degree of influence over emotional judgment so that joy and pain can fulfill their intended roles appropriately.

For example, individuals with addictions experience joy when they obtain what they crave—whether drugs, alcohol, gambling, or other compulsive behaviors—and pain when deprived of it. This response clearly reflects a distorted emotional judgment. In such cases, Zen practice can help individuals observe their addictive patterns directly and gradually discover effective methods—sometimes even subtle strategies—to regulate, weaken, and eventually overcome these compulsions. As a result, they experience a deeper and more authentic happiness arising from regaining control over their minds and freeing themselves from addiction. Children display a similar pattern: due to immaturity, they cry when they do not get what they want. Even healthy and successful adults may stumble psychologically or physically—and in some cases derail their careers or lives—by making mistaken judgments about happiness, such as blindly pursuing one-sided or artificial relationships.

As discussed in Chapter 3, Zen offers a form of happiness that is both sustainable and transcendental (self-liberating). By cultivating a comprehensive and penetrating view of life, Zen enables individuals to rise above—and to some extent supervise—the root source of psychological joy and pain, namely the internal “carrot-and-stick” mechanism itself. Unlike conditional forms of happiness, which inevitably involve suffering due to their dependence on external factors such as status, wealth, or power, this ultimate happiness is gentle, simple, unconditional, non-discriminative, and free of charge. Anyone—rich or poor, elite or ordinary—regardless of knowledge, education, ability, circumstances, or health, has the potential to attain it and sustain it throughout life. This form of happiness can dissolve fear, anxiety, and other forms of psychological suffering, placing us in a stable state of peace, contentment, solidity, and composure—qualities characteristic of Zen.

10. Knowledge and insight

With the exception of congenital or inherited aptitude and wisdom, most of our knowledge and skills are acquired through experience—that is, from outside the mind—and are often stored in the brain in a fragmented manner, without being fully processed or integrated into existing structures of understanding. When such information is not used or valued, it gradually recedes into the subconscious or fades altogether, exerting little practical influence on our lives. Conversely, when properly attended to, this information is progressively reinforced and integrated into the active body of knowledge.

Insight, by contrast, arises from within the mind rather than being learned externally. It represents a form of self-illuminated wisdom. Although insight ultimately becomes stored and integrated into the active knowledge structure like any other information, its origin is internal rather than experiential.

Our brains consist of billions of neurons, each typically possessing thousands of dendrites that connect with other neurons to form vast, interwoven networks responsible for storing and processing information. When new information enters the brain, the extent to which it becomes connected with existing knowledge—whether quickly or slowly, locally or broadly, superficially or deeply—depends on several factors. These include how important the information is to us (such as the degree of attention, reflection, or value we assign to it), how we process it (for example, with an open or a rigid and biased mindset), how much it conflicts with our preexisting beliefs (such as an action that challenges our sense of conscience or an event that contradicts our expectations), the brain's current stress level (a mind overwhelmed by work, sadness, anxiety, or fear has limited capacity to integrate new information), the complexity of the issue, and our prior knowledge and experience.

When the brain detects internal conflict among ideas, neurons respond by extending dendrites to explore new connections. Through this process, the mind attempts to resolve contradictions, explore possibilities, or arrive at insights—often unique and potentially transformative. Many scientific discoveries, for example, have emerged from this remarkable capacity of the brain: after prolonged periods of inquiry, reflection, and uncertainty, researchers experience a sudden "eureka" moment of understanding.

In general, because knowledge integration is an organic process involving the formation of neural connections, it requires time, mental space (leisure), and energy to unfold properly. Upon encountering new information, the brain may take seconds—or even years—to integrate and fully comprehend it, depending on both subjective and objective conditions. This helps explain why two individuals reading the same book may interpret it differently or even reach opposing conclusions. Similarly, when trying to understand why certain events occur in our lives, it may take time before we connect an experience with a previously overlooked piece of information, allowing a broader and more profound understanding to suddenly emerge.

Just as the natural function of muscles is to move and that of the eyes is to see, the functions of the brain are to recognize, remember, think, and—most importantly—to understand and resolve pain or problems. Expecting the brain not to think is no different from wishing the eyes not to see or the muscles not to move; such expectations are not only unnatural and unhealthy but also practically impossible.

At the same time, the brain can fulfill these functions only when it is provided with the conditions it needs: proper nutrition, adequate sleep and rest, sufficient time, reasonable mental space free from excessive stress, and freedom from dogma, prejudice, and rigid preconceptions. Notably, the Buddha himself recognized the futility of rigid ascetic practices and abandoned them after six years, realizing that clarity does not arise from suppression or deprivation.

Zen meditation, when combined with healthy living, naturally provides these supportive conditions, allowing the brain to function optimally without additional effort or forceful intervention. There is a Zen school in Korea that promotes living with a "don't-know mind"—an open and receptive state of awareness. This approach helps practitioners gradually develop a genuine understanding of reality as it is, unclouded by fragmented knowledge, fixed expectations, prejudice, or emotional bias. Even when a comprehensive understanding has been attained, maintaining an open mind remains essential, as it allows for continued learning and the ongoing integration of new knowledge.

Contradictions among fragmented pieces of knowledge within the brain generate varying forms and intensities of psychological pain, including embarrassment, confusion, indecision, dissatisfaction, disappointment, frustration, insecurity, discomfort, torment, shame, remorse, anxiety, fear, boredom, depression, sadness, despair, and even suicidal thoughts. Such pain, in turn, can serve as a powerful signal that urges the brain to seek understanding and resolution.

In the pursuit of answers—particularly in scientific research, where conflicting ideas must be reconciled—researchers often carry a persistent sense of puzzlement, dissatisfaction, and urgency. By valuing these healthy forms of "misery," maintaining curiosity, and continuing inquiry with an open mind, scientists create optimal conditions for the brain to explore, connect, and eventually arrive at insight. This process is comparable to the way athletes deliberately create conditions for muscle growth through sustained and systematic training.

Similarly, when individuals experience psychological suffering, persistently observing, acknowledging, and embracing their pain—rather than denying it or escaping through temporary relief such as pleasure, alcohol, drugs, or by adopting more destructive responses like vengeance, malice, or despair—provides the brain with the motivation it needs to understand and resolve the underlying conflict. Counseling or psychotherapy can produce similar outcomes, but only when the understanding is genuinely integrated into the relevant knowledge structures. This requires that both the guidance received and the accompanying pain be carefully reflected upon, accepted, and meaningfully processed.

Pain often arises from prejudice, fixed notions, or a distorted, incomplete, or misleading understanding of truth. Because truth usually contains both apparent and hidden dimensions—clear and ambiguous aspects, known and unknown details, beneficial and harmful consequences, past and present facts, events and contexts, good and evil, and relationships to oneself and others—it is inherently difficult to discuss, convey, or fully comprehend. As a result, misunderstandings and partial views are common.

To resolve this type of pain, the brain can turn inward to probe, infer, or explore what is missing, gradually uncovering or hypothesizing the key pieces needed to form a more complete picture. This capacity exists because understanding what happens around us is a fundamental need of all living beings—originally essential for survival—especially given that no individual can witness the full truth and that evidence is often incomplete or ambiguous.

Wisdom, therefore, rests on the ability to perceive, deduce, or mentally reconstruct the broader truth about oneself, others, and the world from discrete and fragmented pieces of reliable information. Once insight emerges—offering a reasonably coherent sketch of reality—the next step is simply to return to the facts and seek additional evidence or data to confirm or revise that understanding. Albert Einstein's theories in physics, for example, originated from profound insight supported by mathematical reasoning; only years later were some of them experimentally verified, while others were revised or disproven.

In his time, the Buddha devoted approximately six years to rigorous ascetic practice, yet found no lasting success. By pursuing ideals that focused solely on the positive aspects of himself, he completely neglected the rest of his nature. Only when he was near death from extreme exhaustion and hunger did he become disillusioned with this one-sided approach. At that point, he let go of all ideals and preconceived notions about his spiritual path and goal, opening his mind fully. In doing so, he began to recognize his long-suppressed negative side, which returned vividly to awareness after years of denial, suppression, and discrimination.

Within just seven weeks, he discovered a unique way to remain continuously aware of his own mind—including its negative aspects—and in that moment realized his long-sought spiritual goal. After this breakthrough, he spent an additional seven weeks carefully examining and verifying his insight before deciding to share it with others. Thus, after six years of fruitless effort, he attained awakening within a short period through a radically different approach.

This realization embodied two essential aspects of Zen. First, the recognition that his unwanted or negative side was an inseparable part of himself shattered his deepest delusion and granted him an unprecedentedly thorough view of both himself and the world. Every person carries within them both positive and negative seeds of humanity; the crucial task is not to eliminate the negative—an impossible endeavor—but to observe, supervise, and transform it while cultivating and strengthening the positive. Second, he discovered a real-time method of observing the body and mind that could immediately detect and effectively neutralize harmful or unwholesome thoughts as they arose.

Each of us carries a unique set of attachments and delusions; therefore, merely learning about the Buddha's enlightenment experience—which provides knowledge rather than direct realization—cannot in itself lead to our own full awakening. For this reason, each person must walk the Buddha's path individually by practicing the method he transmitted (as will be discussed in later chapters), in order to identify and uncover personal blind spots. These blind spots are typically obscured by our own prejudices, habitual beliefs, or unexamined assumptions, making them difficult to recognize without sustained practice.

The key to preventing existing knowledge from becoming rigid or prejudiced is to remain continually aware of its incompleteness—that is, to consistently question whether there may be unknown or overlooked factors that could alter our current understanding. The well-known Buddhist saying, ***"Little doubt, little enlightenment; great doubt, great enlightenment,"*** captures this principle precisely. It is this same spirit of doubt and inquiry that has also driven the advancement of science to its present level.

11. Benefits and harm

From time immemorial, people have weighed the pros and cons of their actions, recognizing that nothing in the world offers benefits without potential harm—or harm without some benefit. This understanding alone allows us to derive several practical and constructive rules of thumb for life:

1. Whatever brings more benefits than harm to ourselves and others is generally worth doing; the opposite is not.

2. Those who, over the course of their lives, have brought more benefits than harm to others should be regarded as good.

3. Because benefits, harms, and life itself are inherently relative, all matters should be approached with moderation and balance (the "middle way"). Extreme or one-sided views are best avoided, as they tend to generate risks of their own over time.

4. Large-scale benefits are often accompanied by proportionately large-scale harms, which are typically more complex and difficult to resolve.

5. To maximize benefits while minimizing harm, a diversified ecosystem must be maintained and nurtured. This principle is not only a fundamental law of nature but is also applicable across many domains—such as economics, politics, health, education, culture, and religion—as well as in personal areas including diet, daily activities, preferences, beliefs, and ideologies. For example, as discussed in the Nutrition section of this book, consuming a varied diet and regularly changing meals is healthier than repeatedly eating the same dish over extended periods, regardless of how nutritious or costly it may be. In a diversified environment, the harms produced by one element are more likely to become benefits to another. Through such symbiotic interactions, imbalances can be naturally reduced, allowing the system as a whole to remain sustainable and healthy with minimal corrective intervention.

6. These rules themselves are also relative. They do not necessarily rule out extreme measures to address harms caused by other extreme actions, provided such measures are temporary and cannot be replaced by more moderate alternatives. The weighing of pros and cons must remain a continuous process of evaluation and adjustment for as long as humanity exists. This is because human progress in sustaining and improving life is fundamentally a process of trial and error; consequently, anticipating and managing resulting harms must follow the same adaptive approach.

12. The dark realm and mysteries of life

Dark matter and dark energy, characterized by the following properties, have been scientifically inferred to exist in the universe, even though direct methods of observation have not yet been established:

1. Dark matter exerts gravitational pull.
2. Dark energy drives cosmic expansion, effectively exerting a repulsive force.
3. Both appear to pass through ordinary matter, including our own bodies, without direct interaction.

These two phenomena play fundamental roles in the structure and evolution of the universe. Without them, the universe as we know it would not maintain its current order, and the conditions necessary for life would likely not exist. Because dark matter and dark energy permeate the same physical space we inhabit, yet remain largely invisible and poorly understood, this book will refer to their domain as the *dark realm*, in contrast to the observable *tangible realm*.

The dark realm and the tangible realm are inseparable and cannot exist independently. Consequently, they must exert reciprocal and direct influences on each other, such that the absence of either would preclude the existence of the other. From this perspective, it can be inferred that developments within the tangible realm—including human life and activities on Earth, and possibly even our thoughts and emotions—may influence the dark realm and potentially produce effects or disturbances within it. Conversely, changes or disturbances in the dark realm may also influence the tangible realm and could, in principle, give rise to phenomena commonly described as “supernatural.”

If one further speculates on the hypothetical existence of life within the dark realm—composed of dark matter and dark energy—the interactions between the two realms would become even more complex. Given our current inability to observe the dark realm directly, we cannot empirically verify such interactions. At best, we may only experience their possible manifestations or consequences within the tangible realm.
Because such phenomena cannot presently be understood or proven through reason or observation, humanity has historically relied on three broad explanatory tendencies to interpret events perceived as supernatural or difficult to believe:

1. The theory of randomness
2. Conspiracy-based explanations (such as framing or fabricating mystical phenomena for political or personal purposes)
3. Mystical, metaphysical, or mythological frameworks, including concepts such as gods, heaven, hell, ghosts, souls, prophecies, astrology, divination, horoscopes, feng shui, curses, and witchcraft

In ancient Japan, for example, Shinto tradition revered the sun as a god. With the advancement of modern science, the sun is now thoroughly understood and no longer regarded as a supernatural entity. In a similar way, the dark realm may one day be comprehensively understood, rendering many of these mythical concepts unnecessary for explaining phenomena or fields that are currently considered mysterious or mystical.

13. The Buddha's door to Zen

In his daily activities (except during sleep), the Buddha practiced meditation at all times and in all postures—while walking, standing, lying down, sitting, eating, speaking, working, and resting. His approach to meditation can be distilled into four core exercises, which, with sufficient patience and determination, are intended to guide practitioners toward a stable, sustainable, and deeply fulfilling meditative state:

1) **SITTING MEDITATION:**

   This is the most basic Zen exercise for beginners. The sitting posture makes it less likely for practitioners to fall asleep and requires relatively little energy, allowing for longer practice sessions. Closing the eyes—primarily to reduce external distractions—can further help direct attention inward, toward the body and mind.

   Because the Buddha lived a homeless life, sitting cross-legged in the full- or half-lotus posture was the simplest and most practical option at the time, as it could be done anywhere—on the ground or on any available surface. However, this posture is known to restrict blood circulation and may cause leg numbness in both beginners and experienced practitioners, as well as potential strain or injury over time. Prolonged practice in these positions can also negatively affect the spine and the joints and muscles of the legs.

   To avoid such unnecessary strain and to provide the body with maximum comfort and stability at minimal physical cost, a healthier, more efficient, and less energy-consuming alternative is to sit on a stool whose height is slightly above knee level. This allows the thighs to open forward in a gentle, downward V shape, forming a stable tripod with the stool and the feet. The slight downward slope of the thighs naturally supports an upright spine without conscious effort.

   The hands may rest loosely—either with the palms facing downward on the knees or facing upward just below the navel. The eyes may be closed or kept open, depending on individual needs. All muscles should remain relaxed, without tension, contraction, or stiffness. If drowsiness arises, one should rest or sleep and resume meditation only after becoming fully alert.

   In this seated position, one is prepared to practice Zen according to the following guidelines:

   - Breathe gently, slowly, evenly, comfortably, and naturally. Continuously observe this process—that is, remain aware that you are breathing, that air is moving through the nose and in and out of the lungs, and that the chest and abdomen are expanding and contracting. Keep in mind that this practice is not about controlling or manipulating the breath; rather, it is about maintaining constant awareness of it.

This sustained awareness of breathing is the key and distinctive feature of the Buddha's meditation method. The breath serves as an anchor that stabilizes the mind and prevents it from being carried away by thoughts, attachments, or external activities. It can be said that whenever we are unaware of our breathing, we are not fully aware of our own existence or truly living in the present moment.

Continual observation of the breath also offers physical benefits. By remaining undisturbed by emotional fluctuations or wandering thoughts, the breath naturally becomes regular and balanced, allowing the body to receive adequate ventilation. As a result, hormonal and visceral functions tend toward optimal balance, supporting a healthy and stable condition in which both body and mind can operate effectively.

- Always remember to maintain a very light smile. This serves both as a self-reminder and as an indicator of inner peace and awareness, signaling that you are at ease and mindful of both inner and outer experiences, rather than being consumed, carried away, or absorbed by thoughts, emotions, or even the breath itself (all of which are mental states to be avoided). Meditation should unfold naturally, with ease, in an enjoyable—or even playful—manner, without strain, force, or inner struggle.

  Even in uncomfortable, pressing, or emotionally challenging situations, this gentle smile can have a soothing effect, helping to create a calmer, more composed perspective on whatever issue is at hand.

- Alongside the two practices described above, we should also cultivate simultaneous awareness of sensory experience—especially hearing, vision, and touch (since taste and smell tend to draw attention naturally when they arise and therefore require little supervision). This means being aware not only of what is heard in the surroundings—ambient sounds, people's voices, passing cars, the rustling of leaves, or even silence—but also of the mind that listens to these sounds. Likewise, it involves being aware not only of what is seen—trees, blue sky, white clouds, windows, people and objects in a room, one's own limbs, or even total darkness (when the eyes are closed or the lights are off)—but also of the eyes as they move and look, and of the mind that sees and recognizes these objects. Finally, it includes awareness of the body's posture and movements, as well as sensations perceived through the skin, such as a breeze, warmth, cold, itching, or pain.

- The most important—and most difficult—object to observe during Zen meditation is the mind itself. We train our minds to be aware of, or to keep watch over, their own activities, which include thoughts, emotions, and feelings. As sitting meditation progresses, it is natural at times to be carried away by these activities and to lose awareness of the breath. When this happens, simply recognize the drift; this recognition alone brings it to an end and gently returns you to the practice.

  In essence, this practice involves maintaining simultaneous awareness of the body, the mind, and the external world. Such balanced awareness helps keep the mind

fluid, clear, and alert, preventing it from becoming absorbed in any single object. Absorption is a mental state to be avoided, except during lying meditation before bed, which will be discussed later in this chapter.

- When the mind is burdened by anguish, anxiety, confusion, or even physical pain, in addition to the cognitive activities described above, one should also practice recognizing, embracing, soothing, and calmly observing the difficulty. This process is akin to a mother holding her suffering child—offering comfort and presence while seeking to understand the cause, without yet knowing how to resolve it. The aim is to find the most effective, comprehensive, sustainable, and beneficial way to address the problem. This approach is far more constructive than attempting to escape from, deny, suppress, or replace the difficulty with more extreme or harmful responses, such as revenge or violence.

  By consistently embracing difficulties in a peaceful and healthy manner, ideal conditions are created for insight to arise, drawing upon the brain's natural capacity to understand and resolve pain. If the pain being embraced is fundamental or deeply rooted, its resolution may lead to a profound insight capable of dissolving remaining material entanglements and attachments, thereby liberating the mind. This liberation brings a deep sense of satisfaction, lightness, peace, tranquility, freedom, and a form of joy never previously experienced.

  This state of clarity is not a fleeting experience but an enduring one. From that point onward, one understands how to process new information without generating internal conflict with existing knowledge or experience. The absence of inner conflict reflects an understanding of the fundamental roots of life's challenges—both within oneself and in the world—regardless of how one chooses to face them.

  Such understanding enables one to anticipate possible outcomes in any situation and to remain mentally and strategically prepared to respond in the most effective and least harmful way for all involved. While this comprehensive view of life is not exclusive to Buddhism—individuals with sufficient life experience and insight may develop similar depth of understanding—what distinguishes Buddhism is its highly effective meditation methodology. This method offers a direct path to both self-realization and self-awareness with minimal effort, cost, time, risk, and harm.

- In the absence of serious concern or pain, diligent Zen practice allows seeds embedded in the subconscious—including long-neglected or forgotten skills and knowledge—to gradually surface and influence the mind. This process offers an opportunity for more holistic self-realization, which is essential to attaining a thorough understanding of life, as exemplified by the Buddha after abandoning six years of unproductive ascetic practice.

  Conversely, during periods of abundant free time with few external demands—such as retirement, incarceration, or hospitalization—Zen practice can prevent boredom and mental stagnation. With sufficient time and inner space, practitioners

can observe and explore themselves, the most vital and intriguing element often overlooked in the pursuit of less essential external goals.

Through self-awareness, new horizons may open, revealing fresh goals, inspirations, and even career paths. This expanded inner freedom enables greater choice and control in how one engages creativity and purpose, even under minimal external living conditions, while more fully satisfying the fundamental need for inner peace and happiness.

- When agitation or dullness of the mind arises not from emotional pain, anxiety, or mental absorption, but from physical causes—such as food poisoning, malnutrition, chemical imbalances in the brain, motion sickness, alcohol or drug intoxication, or congenital learning differences such as autism—the appropriate response is to simplify the practice. In such cases, gently focus on the breath, either with closed eyes or by resting the gaze on a stationary point. This approach can gradually calm agitation and help stabilize the mind while more effective or longer-term treatment is sought.

  If such agitation occurs in public, it is important to pause the current activity, acknowledge the situation, and take preventive or corrective action, rather than suppressing symptoms, forcing normal behavior, or continuing without adjustment. Individuals with learning disabilities or neurological differences should seek living and working environments that appropriately accommodate their needs and symptoms.

  Although Zen practice is not a substitute for medical care, it can help reduce the severity and frequency of these difficulties over time. When combined with proper support and accommodations, it may contribute to improved stability, adaptability, and overall functioning.

- Practicing Zen is akin to acquiring a new mental skill—one that involves the simultaneous observation of the body, the mind, and the surrounding environment. In essence, we cultivate an inner “master”: an overseeing awareness that monitors, in real time, as many bodily and mental processes as are necessary and practically possible, alongside what is happening in the world around us. Because many of these processes have long operated automatically, with little or no conscious supervision, this trained awareness establishes a real-time feedback loop, enabling us to maintain clarity and balance—both internally and externally—at all times.

  Through this practice, we can move beyond being driven by emotions and accumulated knowledge, rising above their mechanical influence and regaining agency over them. Accordingly, the ultimate aim of Zen is not to suppress or eliminate thoughts and emotions, but to allow them to arise and unfold in a moderate, balanced, healthy, and constructive manner under continuous, inclusive awareness. In this way, the mind remains free to generate thoughts and emotions and to offer impulses, suggestions, or requests. The final decision, however, rests

with the inner master—an awareness that now understands how to skillfully manage both body and mind.

- As discussed in Chapter 5, focusing observation on a single object tends to halt, or at least greatly limit, the flow of thoughts and emotions. Therefore, if we wish to observe both the inner and outer worlds—the body, the mind, and external objects—while still allowing thoughts and feelings to arise in moderation, we must develop a different mode of observation during meditation. Perhaps this mode can best be described as *"keeping an eye on,"* or *"staying on top of,"* experience as it unfolds.

  In this approach, all observed elements—including ongoing thoughts and emotions—are treated as integral parts of a single event: the present moment. To achieve this, the Zen practitioner gently accepts and embraces every object of observation and allows them to coexist as one unified reality, without discrimination, preference, attachment, or special emphasis on any particular object. This method enables the observer to perceive an overall picture of what is occurring, both internally and externally, here and now.

  As a result, individual objects may appear slightly blurred and less sharply defined, and observation may proceed at a slower pace. In return, however, the practitioner maintains continuous access to the whole picture of the present moment. When necessary, attention can briefly zoom in on a specific detail and then naturally return to the broader view, which remains readily available at all times.

  This observational technique is similar to watching a movie. The screen represents the complete present moment, while the unfolding scenes and details correspond to the various activities occurring in the body, mind, and surroundings. Depending on one's needs, attention may rest on the overall scene or focus temporarily on a particular detail, yet the screen—the full context—never disappears.

  Another analogy is that of a teacher monitoring a classroom. The classroom itself represents the totality of the present moment, while each student symbolizes a distinct object of observation within the body, mind, or environment. At any given time, the teacher may focus on a particular student who requires attention or simply observe the class as a whole. It is impossible to clearly identify every individual student while simultaneously maintaining a full view of the entire classroom; the balance between detail and totality must constantly shift.

  In Buddhism, this all-encompassing mode of awareness is often referred to as "one mind." Though this concept is notoriously difficult to grasp intellectually, it can be realized instantaneously and, once understood, becomes as natural and irreversible as riding a bicycle.

  With the realization of this observational method, our view of ourselves and the world changes profoundly. Body and mind are no longer experienced as isolated entities but as ever-present, inseparable parts of the surrounding world. This

technique is a hallmark of Zen practice and serves as a clear indicator of genuine, real-time self-awareness—along with its characteristic stability—similar to what the Buddha is said to have experienced under the Bodhi tree thousands of years ago.

- In summary, Zen meditation can be simply understood as a technique of continuously, simultaneously, and inclusively staying on top of (or keeping an eye on) the following six processes (or objects): (1) the breath (the primary object); (2) the sense of hearing (including ambient sounds—or even complete silence—and the act of listening within the mind); (3) the sense of vision (including objects in the visual field, the movement of the eyes as part of the body, and the act of seeing within the mind); (4) the sense of touch (including posture, bodily movements and external contact with the skin); (5) the mind (including thoughts, emotions, and feelings); and (6) a gentle smile on the face (along with the associated sense of joy and peace within the mind).

  For beginners, it may be helpful to introduce these six objects gradually. One might begin with the breath for a few weeks until it becomes familiar, then add the sense of hearing, followed by the remaining objects in sequence, allowing a few weeks—or longer, if needed—for each. Over time, all six can be integrated into a single, unified field of awareness.

2) WALKING MEDITATION:

After a few weeks of becoming familiar with sitting meditation, the next practice—walking meditation—can be introduced, preferably after a sitting session. Instead of remaining seated, we walk slowly, step by step, either indoors or outdoors. In addition to maintaining the same objects of awareness as in sitting meditation, we also bring mindful attention to each step: the contact of heel and toes with the ground, the shifting of weight, and the subtle movements of the body, while all other muscles remain loose and relaxed.

Because walking meditation involves more elements of movement, the objects of observation are slightly more complex, making this practice somewhat more challenging than sitting meditation. On the other hand, walking naturally promotes alertness, which can make observation feel more vivid and spontaneous.

Continual awareness of each step also helps reveal the mechanical or unconscious patterns in the way we usually walk. Through this awareness, we gain the opportunity to refine and improve our movements. In everyday life, we often walk without any awareness that we are walking at all; walking meditation restores this lost connection.

3) REAL-LIFE MEDITATION:

The ultimate aim of Zen practice is to maintain awareness of the body and mind throughout all daily activities—working, communicating, eating, moving, or engaging in entertainment. This integrated practice is referred to here as *real-life meditation*.

Once familiarity with walking meditation is established, practitioners may begin this most comprehensive and challenging exercise. It is best to start with simple tasks that require minimal associative effort, such as sweeping the floor, vacuuming, or washing dishes, and then gradually progress to more complex activities, including eating, talking, socializing, and working.

Among these, practicing meditation while speaking—especially during phone conversations—is often the most difficult. Speaking requires continuous real-time thinking and restricts inhalation, since speech occurs only during exhalation. This makes it easy to lose continuity of observation and become carried away by words and thoughts.

Also, when people focus intensely on work, listening, or observation, they often unconsciously hold their breath until the task is completed. Over time, this habit leads to premature mental and physical exhaustion and may contribute to absent-mindedness, fatigue, or declining responsibility, largely due to insufficient oxygen intake. By consciously monitoring the breath and keeping it steady during work and daily activities, overall endurance, clarity, and productivity can be significantly improved.

When practicing Zen in real life, one naturally adopts a different attitude. Activities become more mindful, composed, considerate, and relaxed, because every action and word is now observed and intentional rather than mechanical, impulsive, or obsessive. This heightened awareness not only reduces mistakes and physical risks, such as stumbling or errors, but also helps build trust and rapport with others, as mindfulness and self-control tend to be clearly perceptible.

Once real-life meditation becomes natural and stable, separate practices of sitting and walking meditation are no longer necessary, as they are fully integrated into daily life. For tasks requiring high levels of concentration, less essential components of the above six objects of observation may be temporarily set aside to focus on the work at hand. However, it remains important to maintain at least a minimal awareness of the breath—and, when appropriate, of the body and one's manner of action. Without this foundational awareness, the practitioner risks becoming fully absorbed in the task and losing the final anchor to reality: the breath.

4) LYING MEDITATION:

Unlike the previous practices, the purpose of lying meditation is not to maintain active awareness of the body, mind, or surroundings, but to gently quiet ongoing thoughts so that sleep can arise naturally and effortlessly. Overthinking or intense emotions often interfere with falling asleep and, if left unaddressed, may contribute to chronic insomnia.

For this practice, lie flat on your back on a firm yet comfortable surface in a clean, quiet, and well-ventilated space. Keep the lighting low and the temperature

comfortable—use a fan if the room is too warm, or wear warm clothing, use blankets, or turn on heating if it is too cold. Avoid using a pillow unless you are lying on your side.

Extend your limbs naturally, allow all muscles to relax, and then proceed with the following steps:

- Breathe gently, slowly, evenly, and comfortably, as in sitting meditation. The difference here is to inhale *slightly* more air than is strictly necessary with each breath, while maintaining continuous awareness of the breathing process alone—and nothing else. This means always knowing that you are breathing, that air is moving through the nose in and out of the lungs, and that the chest and abdomen are rising and falling.

  This breathing approach can support the onset of sleep in three ways:

  A) It interrupts and restrains the ongoing stream of thoughts that often keeps the mind awake.

  B) It gradually leads the mind into states such as drowsiness, mild boredom, or gentle absorption in the breath—mental conditions that are closely associated with falling asleep.

  C) By slightly increasing air intake over time, this practice may subtly influence breathing regulation, encouraging the body to transition toward a sleep state as a natural way to reduce respiratory activity and prevent hyperventilation (oxygen poisoning). This effect helps explain why people often fall asleep easily on a warm summer day under the dense shade of a large tree, where the environment is oxygen-rich and conducive to rest.

- Lying meditation should be practiced—preferably on one's bed—at a fixed time each day, typically about fifteen minutes before the desired bedtime. This regular practice helps train the body to establish a healthy and consistent sleep routine, allowing for a minimum of eight hours of rest.

- Neither a completely full nor an empty stomach is recommended before bedtime. Avoid stimulants such as tea, coffee, or ginseng after noon, and do not rely on sleeping pills or alcohol to induce sleep. The use or abuse of drugs—including narcotics or marijuana—or alcohol should be strictly avoided.

- Engaging in sufficiently demanding physical activity during the day helps expend excess energy and prepares the body for a restful night's sleep. After supper, it is best to avoid stimulating activities or work that requires intense concentration.

14. Care for the mind

Though humanity originated in the wild, at this stage of our evolution each of us naturally seeks to create a clean, orderly, safe gardens—for ourselves, our families, or our societies—where we cultivate only the plants and trees we need or value, arranged according to designs we find logical, pleasing, or beneficial. In much the same way, our minds contain a mixture of positive and negative seeds that thrive under suitable conditions. If left unattended, they may grow as wildly as a jungle filled with dangerous beasts, insects, and invasive weeds, obscuring the precious treasures beneath.

To improve our lives, we must actively nurture the positive seeds within our bodies and minds while restraining the growth of negative ones—just as a gardener fertilizes and waters desired flowers and fruits while controlling weeds and pests. As the human mind has evolved more rapidly than that of any other species—both emotionally and rationally—and as all rational activity is ultimately driven by emotion, it is not difficult to see how the world often mirrors the way our hearts and minds choose to perceive it. It is therefore no coincidence that religions across cultures encourage and honor positive emotions that promote peace and joy, such as generosity, compassion, charity, piety, and kindness, while cautioning against their opposites—selfishness, greed, hatred, aggression, malice, and cruelty.

Just as gardeners must regularly observe their gardens in order to care for them, meditators must directly observe their own bodies and minds. Those who do not practice meditation may still gain insight through indirect observation—by noticing others' reactions, receiving feedback from family or friends, or reflecting on the consequences of their actions. However, such indirect observation often arrives too late, when the situation has already unfolded beyond repair. This delay has been a tragic pattern throughout human history, contributing to countless conflicts, wars, and breakdowns that might have been avoided through the real-time, direct awareness cultivated by Zen practice.

Like gardeners who build fences or plant beds to keep their gardens orderly, accessible, and easy to maintain, meditators should establish guiding principles and boundaries within the mind. These inner structures allow beneficial, healthy seeds to flourish while limiting the growth of destructive tendencies that are always ready to arise under permissive conditions. Since nothing in the world exists with only positive or only negative effects, we must carefully consider all relevant factors—such as circumstances, conditions, nature, and context—and account for as many affected parties as possible before speaking or acting, with the aim of maximizing benefits while minimizing harm.

Such judgments are inevitably subjective and may vary from person to person. Nevertheless, this diversity of perspectives can ultimately help reduce or eliminate harm—even if it comes at the expense of certain benefits—and support the long-term balance and health of the overall environment.

15. Transforming unhealthy habits and grudges

The gradual replacement of long-standing, unwholesome mental patterns with new observational and meditative skills typically requires years of sustained Zen practice. Based on the experiences of many accomplished practitioners, approximately 1,000 hours of meditation is often needed to attain at least one of the two core aspects of Zen practice. Practically speaking, this corresponds to about three years of daily practice at one hour per day.

This estimated duration may vary considerably—becoming shorter or longer depending on the practitioner's level of care and concern (such as sustained reflection on personal suffering or inner contradictions), temperament, life circumstances, knowledge, experience, and even chance. Regardless of timing, it is essential not to expect or chase enlightenment, as such expectations can foster illusions of progress and become obstacles to seeing reality as it truly is.

Just as spring arrives naturally after winter, or fruit falls from a tree when it is fully ripe, the mind becomes free on its own once all entanglements are understood and released, thereby dissolving internal conflict and suffering. Historically, this clarity has often been observed to emerge in individuals after the age of thirty-five, though it is by no means limited to that stage of life.

Like gardeners who create the right conditions for plants to grow and then wait patiently, Zen practitioners need only cultivate an open inner space—free from prejudice and dogma—together with a healthy physical environment through proper eating, drinking, sleeping, and rest. By gently incubating existing pains or concerns and maintaining awareness both internally and externally, the necessary conditions are established for the brain to function optimally and, at times, generate insights previously unimagined.

It is crucial not to impose fixed ideas or preconceived notions on the mind, as such constructs have never truly resolved suffering and therefore offer little help. To move beyond confusion, one must discover a new perspective—one closer to truth—by relying on the mind's inherent capacity to analyze, reason, understand, and judge.

Ultimately, the purpose of Zen is to suspend emotional reactivity and prejudiced interference, to step back, and to allow the rational mind complete freedom to observe and explore reality directly, fully, and impartially—without attachment and without distortion through any intellectual lens.

If enlightenment is considered the ultimate milestone of Zen practice, it also marks the beginning of a new phase—the gradual transformation of lingering grudges and negative habits. Even after developing strong observational skills and a comprehensive view through Zen practice, deeply ingrained habits and resentments may still remain. All it takes is a brief

moment of distraction for them to surface, momentarily seize control, and lead to undesirable consequences before they are recognized and disarmed.

What matters most in such moments is the ability to recognize what has occurred, learn from it, and respond with understanding and self-forgiveness. These lapses are not intentional; vigilance has its limits, and perfection is neither possible nor required. Each time a habit or grudge is identified and gently neutralized, its influence weakens and, over many years, can be gradually transformed.

This honest recognition of our inherent imperfection naturally extends to greater tolerance for the imperfections of others. It fosters compassion and supports a more balanced, moderate view of life. After all, no one in the world is perfect—not even the Buddha—and every sincere effort toward goodness has value and deserves encouragement.

It is precisely this understanding that leaves no ground for extremism, punishment, hatred, or cruelty to take root within the landscape of Zen practice.

Once we learn how to master the mind, we gain a vast inner space in which to observe, understand, reason, resolve, and ultimately embrace or accept the outer world. It is this inner space that provides an inexhaustible source of happiness, nurtures strength and resilience, and enables us to maintain a neutral, accurate, balanced, and holistic view of ourselves, others, and life as a whole. With such clarity, we are better equipped to live the best possible life within our own unique circumstances and conditions.

Seen in this light, might Zen not represent an essential skill—or even an evolutionary step—necessary for humanity to continue its existence and development peacefully and sustainably on Earth? If so, should it not be incorporated into school curricula, not as a religious doctrine but as a fundamental life skill that supports peaceful coexistence among humans and with other forms of life? As little as ten to fifteen minutes of Zen practice at the beginning of each school day could help equip children with a more balanced, calm, happy, and stable mental foundation as they enter adulthood, along with a healthy and effective means of resolving pain and inner conflict throughout life.

Such an approach may also offer an affordable and sustainable response to the growing social, physical, and mental health challenges facing the world today. Beyond schools, Zen practice could be introduced in hospitals, prisons, and workplaces as a therapeutic or developmental exercise—one that not only alleviates illness, stress, and extreme or destructive thought patterns (thereby reducing reliance on harmful outlets such as violence, corruption, alcohol, gambling, and other addictions), but also enhances physical and mental health, performance, and creativity.

16. Love

The following signs of genuine and healthy love can help us evaluate both our own feelings and those of our partners, enabling us to make thoughtful and appropriate decisions in relationships:

1) Love begins with genuine feeling rather than logic or reasoning, although reason later plays a crucial role in confirming mutual affection and in protecting, sustaining, and developing a long-term relationship. These initial feelings may be understood as innate signals—possibly rooted in biology—indicating the recognition of complementary qualities in another person, qualities that historically increased the likelihood of healthier, more adaptable offspring and greater chances of survival. Such feelings draw individuals toward one another and motivate connection.

   These early emotions do not last indefinitely, but they leave lasting impressions that naturally evolve into long-term attachment, intimacy, and a sense of comfort. Without these formative feelings, relationships tend to become partnerships of interest or convenience. While such arrangements may still function if mutually accepted, they are often transactional, mechanical, and emotionally insufficient.

   At the same time, the very differences that create attraction can also give rise to conflict. For this reason, love must possess additional qualities in order to mature into a stable, enduring relationship—one capable of fulfilling its deeper emotional and, historically, reproductive roles.

   To this end, love requires the following six additional traits to sustain itself over time.

2) The foundation of love is kindness, always guided by the intention to do good and to avoid harm to both parties. The absence of this foundation is what led the lovers in ***Romeo and Juliet*** to suffering and death rather than to happiness and life—the very outcomes that love is naturally meant to nurture.

3) Love should bring happiness to both partners. If one partner is consistently unhappy, it suggests that at least one person may not yet know how to love or how to be happy—including situations involving physical or mental limitations—or may not truly love the other.

4) Love is accompanied by genuine appreciation for one's partner and for the happiness and benefits the relationship provides, none of which are taken for granted. A loving relationship is therefore rich in gratitude.

5) Love naturally gives rise to fairness and excludes abuse, exploitation, or deception. When one partner relies on the other in certain aspects, there arises a spontaneous wish

to offer support in other areas where one is more capable or better positioned, whether mentally or physically. Unlike political or legal justice imposed from outside, fairness in love emerges from within and is entirely voluntary. Out of love, one feels joy—rather than obligation—in doing good for the other, much like a parent instinctively caring for a child.

6) Love can only flourish in freedom and therefore cannot be traded, bargained for, begged, forced, or even persuaded. Beyond the shared space that both partners enjoy and strengthen together—where intimacy and resilience are nurtured—each individual also needs a private space of their own. Such personal spaces, when respected and supported, indirectly enrich the relationship, so long as they do not undermine or harm the shared space between the two.

7) If, for any reason, a loving relationship must come to an end, it may naturally give rise to short-term sorrow, disappointment, or even anger, but never to enmity—especially not to lasting, destructive intentions to exploit or cause suffering to the other. If love later turns into hostility, then it was never truly love to begin with. True lovers remain amicable toward one another even after parting, whether the separation occurs by choice or by circumstance.

What truly makes a family is love. Genuine love should therefore be the fundamental starting point when building a family. A responsible lover must also engage reason—to discern the feelings, intentions, and motives of the other partner—and to ensure that mutual love genuinely exists before moving forward. Only then should practical efforts be made toward a sustainable life together and toward creating the conditions and environment in which the seven properties of love can develop, flourish, and nurture the relationship.
Becoming a husband or wife for reasons other than love—whether sudden or gradually developed—will likely lead to unavoidable difficulties or suffering for one or more members of the family over time. Love is not optional; it is an indispensable ingredient for a happy and healthy family.

Other forms of human love—such as love for relatives, friends, countrymen, or humanity at large—also embody the same seven properties to varying degrees, while carrying their own distinct emotions, qualities, and intensities.

17. Law and morality

Law and morality share a common aim: to establish frameworks and limits that sustain peace, order, stability, safety, and a basic foundation for personal and social well-being. Yet they operate in fundamentally different ways. Law enforces order externally, judging observable actions and outcomes, whereas morality is voluntary and regulates conduct from within, based on the motives underlying those actions.

Because observable phenomena are easier to verify than hidden intentions, it is understandable—and practical—that modern societies (including religious institutions) rely primarily on laws and rules. However, when judgment is confined solely to appearances and outcomes, without regard for motive, we risk turning the world into a stage of perpetual injustice and quiet tragedy, where laws and rules serve merely as façades concealing an increasingly unruly backstage.

If judgment were based only on outward phenomena, two people donating the same amount to charity would appear equally charitable, even though one may be motivated by genuine compassion and the other by a desire for recognition or some ulterior purpose. Such hidden motives may ultimately generate harms that outweigh the apparent benefits of the act itself. Likewise, an offender who successfully conceals wrongdoing and leaves no evidence may evade legal consequence entirely. After all, if humans can create laws and rules, they can also manipulate, circumvent, or exploit them. The more complex and numerous the rules become, the grimmer the game of life grows—one in which the rich and powerful tend to hold the advantage, while the majority of people, especially the voiceless, the poor, and the vulnerable, often become victims, directly or indirectly, whether they are aware of it or not (as in cases of systemic or governmental corruption affecting an entire population).

This reveals that law alone cannot fully achieve its intended purpose without the support of morality. Although morality varies in depth and consistency across individuals and cultures, it offers a distinct and indispensable means of evaluating actions beyond mere appearances. While morality operates implicitly, it nonetheless manifests through subtle yet recognizable signs, discernible to the attentive observer.

Through disciplined observation of body and mind, Zen practice enables individuals to recognize and neutralize negative tendencies as they arise, while consciously nurturing positive qualities that strengthen moral awareness. In this way, Zen supports the gradual transformation of society, one individual at a time. A society composed of people who genuinely “know themselves” is likely to be more stable and orderly, because self-knowledge sharpens one’s ability to understand others, to judge situations more accurately, and to choose responses that reverse, neutralize, or at least do not contribute to forces that threaten to degrade or destabilize the social fabric.

18. Spiritual teachings and psychotherapies

During his many years of teaching Zen, the Buddha offered spiritual guidance and practical methods—collectively known as spiritual teachings—to help practitioners train themselves to overcome suffering and ultimately attain the freedom, joy, and stability he had realized. At the same time, he emphasized that these teachings were means rather than ends. They were to be understood as temporary therapies or remedies for illness, not as absolute truths to be worshipped, enforced, or clung to.

Because teachings address general patterns of mental suffering, while actual human suffering is often complex, multifaceted, and highly individual, practitioners must approach practice with care and discernment. Each person should learn from different Zen masters and apply the teachings wisely, flexibly, and verifiably, adapting them to their own circumstances. Otherwise, one risks becoming further lost by replacing old difficulties with new—and sometimes more severe—mental entanglements.

For example, to relieve suffering arising from attachment to a concept A (such as the belief that the material world is real and permanent), Buddhism introduces the counter-concept NOT A (that the material world is empty and impermanent) as an antidote. This new perspective helps loosen attachment to A and thereby neutralize the suffering it produces. However, if one abandons A only to become attached to NOT A, new forms of suffering will inevitably arise—sometimes even more severe than the original—because NOT A represents a less familiar and largely uncharted domain. Depending on one's tradition, NOT A may take the form of God or other metaphysical, supernatural, or mythical concepts.

This illustrates that the true problem lies not in concept A or NOT A themselves, but in attachment to them. A more effective solution, therefore, is to let go of both simultaneously. Letting go does not mean refusing to use concepts when they are appropriate or beneficial. Rather, it means not clinging to them rigidly or elevating them into permanent prejudices or dogmas. Only by engaging with knowledge in this flexible and detached way can we begin to master the mind—both emotionally and rationally—and loosen its habitual mechanical grip.

This raises an important question: since concepts and emotions are inherent functions of the mind and cannot be eliminated entirely, how can we avoid becoming trapped by them or undo existing prejudices, negative habits, and grudges? Zen addresses this challenge through real-time observation, enabling timely recognition and intervention. In doing so, it offers a scientific, practical, and sustainable approach that can be applied anytime and anywhere, while conserving energy and enhancing both physical and mental well-being.

19. Zen and the worldly ways

Zen makes a real difference—and maximizes its transformative impact on the world's suffering—when it is fully integrated into daily life. With a genuine grasp of Zen, we can still enter the world and participate in worldly activities according to our abilities, conditions, and preferences, without the need to adopt a secluded or monastic lifestyle. What changes is not our physical engagement, but our mental relationship to the world: we remain involved yet inwardly free—neither attached, assimilated, carried away, nor drowned in worldly affairs.

This approach has been practiced for over a millennium in Japanese monasteries, where individuals are free to enter, study Zen, and leave at will or upon enlightenment. Having gained a thorough understanding of themselves and others, many of these anonymous enlightened practitioners re-entered society, participating in all walks of life. In doing so, they helped shape social norms through their Zen-informed manners, discipline, wisdom, and vision. This may well be one of the underlying reasons for the broadly shared Zen-like comportment often observed in Japanese society, particularly its emphasis on self-discipline.

The "worldly ways"—the mechanisms by which the world operates—encompass all activities beyond our immediate bodies and minds, including politics, economics, law, health, culture, customs, nationality, community, and family. These domains, whether constructive or destructive, form an indispensable part of a thorough understanding of ourselves, humanity, and life—one of the two core aspects of Zen. Even though our aim may not be to change the world, understanding and accepting worldly ways as they are is essential for responding to life's situations with effectiveness, calmness, balance, happiness, safety, and health, both for ourselves and for others.

Since worldly ways constitute a vast domain beyond the scope of this book, the author will present only one illustrative example of their subtle, complex, and often unpredictable nature (see Appendix A, "Divide to Rule"). This example serves to highlight the characteristic Zen response, which—though outwardly passive and requiring minimal effort or resources—is consistently constructive, aiming to maximize benefits while minimizing harm for all parties involved.

20. Alcohol and Zen

Nerve cells communicate with one another through neurotransmitters. Alcohol partially affects the brain by inhibiting certain neurotransmitters while stimulating others, thereby disrupting normal neural functioning. Although this distortion may produce short-term effects that some people find pleasurable, it comes at the cost of numerous long-term problems when alcohol is abused or addiction develops—resulting in far more harm than benefit.

Alcohol's limited benefits include the following:

- **Short-term pleasure and social stimulation.** Alcohol can produce a temporary sense of pleasure and excitement and is often favored at social gatherings because it quickly evokes visible moods of joy, enthusiasm, and sociability, such as increased talking and laughter.

- **Temporary mental inhibition and emotional relief.** Alcohol suppresses, to varying degrees, the ability to think clearly, making drinkers less willing or able to dwell on worries, thoughts, or emotions. As a result, the mind may feel temporarily relaxed, carefree, and at ease. This effect is particularly appealing to those experiencing stress, frustration, anxiety, or melancholy, as these states can be relieved quickly through drinking without the effort required for meditation, reflection, or problem-solving. However, impaired clarity also leads drinkers to speak more freely—sometimes childishly—while the accuracy and reliability of what is said decline with increasing consumption. Some individuals deliberately use alcohol as a pretext to say or do things they otherwise would not, later attributing their behavior to intoxication. Conversely, individuals with high alcohol tolerance may exploit such situations to extract information from others or test their honesty, since greater intoxication makes it harder to filter thoughts or manipulate the truth.

- **Short-term facilitation of sleep.** Consuming alcohol after dinner or before bedtime may initially make it easier to fall asleep due to alcohol's depressant effects on the nervous system. With continued use, however, this practice often disrupts sleep quality and may lead to chronic insomnia, increasing reliance on alcohol as a sleep aid and raising the risk of long-term dependency or addiction.

To obtain these fleeting and limited benefits, alcohol consumers—and often those around them—pay far greater costs, to varying degrees:

- **Impaired cognition and productivity.** Under the influence of alcohol, a drinker's ability to think, judge, and work is diminished to varying extents, depending on the amount consumed. Even moderate drinking measurably degrades brain performance,

leading to reduced work quality, poorer judgment, slower reaction time, and diminished mental clarity.

- **Rebound depression and reduced mental efficiency.** Alcohol is scientifically established as a central nervous system depressant. Beyond its immediate effects, alcohol is commonly followed by a longer depressive phase during which cognitive speed, efficiency, and motivation decline. This prolonged suppression negatively affects professional performance, personal well-being, family life, social relationships, and financial stability. (Here, depression refers to reduced brain activity, in which thinking becomes slower, less effective, and less efficient than normal.)

- **Risk of chronic depression and addiction.** Prolonged or repeated alcohol use can lead to chronic depression and dependency, conditions that have no quick or simple cures. Even after acute intoxication subsides, hangovers and lingering neurochemical disturbances continue to impair thinking and productivity. These effects often intensify cravings for further drinking, creating a self-reinforcing cycle that can gradually entrap individuals in addiction. Over time, this trajectory may lead to financial ruin, family breakdown, or broader social harm affecting entire communities.

- **Severe physical and neurological harm.** In addition to psychological effects such as mood instability, hallucinations, cognitive decline, and slurred speech, chronic alcohol use is medically linked to increased risks of liver inflammation and fibrosis, multiple cancers (including oral, throat, esophageal, liver, bowel, and breast cancer), type II diabetes, cardiovascular disease, stroke, brain hemorrhage, gallstones, pancreatitis, gastrointestinal disorders, lung infections, osteoporosis, infertility, hormonal dysfunction, malnutrition, muscle weakness and contraction, impaired balance and coordination, limb numbness, brain atrophy, chronic fatigue, and persistent insomnia.

- **Broader social consequences.** Alcohol is also a significant contributor to social harm, including violent crime (such as assault, sexual violence, and homicide), traffic and fall-related accidents, alcohol poisoning, suicide (often linked to depression or emotional numbness), and unemployment due to reduced productivity and reliability.

This clearly indicates that alcohol is a toxin to the human body, much like other addictive substances such as tobacco, marijuana, and illicit drugs. A common characteristic shared by these substances is that they activate the body’s built-in alert and stress-response mechanisms—systems originally designed to help us respond efficiently to danger. This activation can produce temporary sensations of heightened clarity, confidence, energy, or emotional release, creating artificially induced mental states that may gradually lead to dependency and addiction.

In other words, while the perceived benefits of alcohol discussed at the beginning of this chapter are superficial, artificial, and short-lived, the harm it inflicts on the body, the mind, families, and society is real, cumulative, increasingly severe, and often difficult—if not impossible—to reverse.

Zen and alcohol—or any other addictive stimulant, including tobacco, marijuana, and drugs—are fundamentally incompatible because their effects move in opposite directions:

- **Zen cultivates mental freedom and sovereignty**, whereas addictive substances enslave the mind and subject it to relentless craving and dependence. Addiction therefore signals either an unsuccessful Zen practice or the absence of genuine practice altogether.

- **Zen can help individuals confront, manage, and gradually overcome addiction**, while addictive substances not only fail to help but also constitute a major obstacle to Zen practice. The artificial euphoria or pleasure temporarily induced by stimulants bears no comparison to the deep, stable, and enduring happiness cultivated through Zen.

- **Zen enhances brain function in the most efficient and energy-conserving manner**, whereas alcohol impairs cognitive function and contributes to depression. Through sustained practice, Zen can gradually alleviate—and in some cases permanently resolve—depression without reliance on medication.

- **Zen fosters a clear, integrated, and holistic understanding of oneself and the world** (including the nature of alcohol itself), while addictive substances generate only fleeting hallucinations or mental distortions. This clarity allows for the gradual accumulation of stable insight that helps dissolve ignorance, misunderstanding, and illusion—the root causes of psychological suffering.

- **Escaping suffering, anxiety, or discomfort through stimulants deprives practitioners of essential opportunities for insight**. Such avoidance undermines the motivation to observe difficulties directly, understand their causes, and resolve them at their roots in a healthy, sustainable way.

Nutrition

21. Modern nutrition

Because the brain is part of the body, and because the mind arises from the brain's contents and operations, body and mind are fundamentally integrated and inseparable. Consequently, when the body is stressed, fatigued, ill, poisoned, or malnourished, the mind is inevitably affected and must find ways to cope with these physical conditions. With today's abundance of scientific knowledge freely accessible online, caring for ourselves and maintaining good health has never been more achievable.

The author therefore recommends a modern, scientific, simple, healthy, and affordable diet suitable for people of all backgrounds—regardless of wealth, profession, or geographic location. This dietary approach not only helps reduce illness and support physical health, but also promotes mental well-being, comfort, and stability, making Zen practice especially effective. In step with advances in modern medicine, the author has refined and applied this method for over 30 years, achieving results for both body and mind that have exceeded expectations. The following guidelines summarize this approach and should be applied flexibly and monitored in daily meals. They may also be combined with relevant scientific knowledge to determine appropriate quantities and methods of consumption for each individual and situation.

22. Background

Most non-communicable diseases today—such as cardiovascular disease, stroke, diabetes, sleep apnea, liver disease, kidney disease, cancer, autoimmune diseases (such as Crohn's), dementia, Alzheimer's, depression, schizophrenia, tooth decay, gingivitis, susceptibility to infection, and long-term symptoms after acute infections such as COVID-19—are related to metabolic syndrome. They originate from the modern pattern of eating more than necessary, living unnaturally, consuming nutrient-depleted processed foods full of harmful chemicals, and being exposed to chronic stress and artificial environmental pollution. Metabolic syndrome is the most prominent public health threat of the 21st century, with five typical signs: high blood pressure, high blood sugar, high triglycerides, low good cholesterol (HDL), and excess belly fat.

With its special structure, the heart is the only organ that cannot develop cancer and will stop functioning after about 2–2.5 billion beats. In addition, the number of divisions (self-reproductions) programmed in the genes of every other cell in the body is limited and fixed. These two factors establish the foundation for the natural human lifespan.

Outlined below is a dietary approach designed to support lifelong health and reduce concern over the modern diseases mentioned above. It also promotes longevity by minimizing unnecessary psychological, physiological, physical, and social strain that can accelerate heart rate and impose cumulative stress over time. Since a faster heart rate is associated with a shorter lifespan, this approach emphasizes efficiency, balance, and sustainability. This summary integrates contemporary medical research with long-term practical experience and is grounded in the following foundations:

I. The LUV (Low Uric Values) diet, as presented in *Drop Acid: The Surprising New Science of Uric Acid* by Dr. David Perlmutter (2024, USA), which focused on improving health by lowering blood uric acid
levels.
II. Dr. Shinya's dietary principles, described in *The Enzyme Factor* (2005, Japan) and *The Microbe Factor* (2017, USA), emphasizing maintenance of a healthy enzyme reserve and microflora.
III. Dr. Nagumo's dietary approach, outlined in *Being Hungry Makes You Healthy* (2012, Japan), which promotes intermittent energy restriction to activate cellular stress-response and longevity-related gene pathways.
IV. Dr. Lustig's metabolic health framework, presented in *Metabolical* (2021, USA), which targets insulin reduction by limiting processed foods.
V. The author's over 30 years of accumulated knowledge and practical experience in nutrition and health.

23. Guidelines

1) Organic foods: Give priority to seasonal, locally grown organic foods that are produced naturally—grown in fertile soil or free-range systems rather than greenhouses or cages, fertilized with organic matter instead of synthetic NPK fertilizers, and free from pesticides, antibiotics, and toxic or artificial chemicals.

Foods should be fresh (not spoiled, moldy, rotten, expired, or exposed to air for extended periods after unpacking, cutting, or cooking), raw when appropriate (such as fruits and vegetables), wholesome (including whole grains with both germ and bran, whole vegetables and fruits with the peel, and whole fish or seafood), and non-GMO.

Foods purchased directly from farmers or local markets are often fresher, safer, more affordable, and more environmentally sustainable than those bought at supermarkets. Only when organic foods are unavailable should lower-quality alternatives be consumed, and then only in limited amounts, with care taken to remove or neutralize as much of the unhealthy content as possible.

2) Processed foods: Avoid artificial or highly manufactured foods, including carbonated soft drinks, chewing gum, candy, chips, sausages, dairy products, and foods containing synthetic additives or preservatives. Also avoid refined foods such as sugar, white starches, white rice, refined cooking oils, and refined salt, as well as addictive substances including tobacco, alcohol, tea, coffee, and other sweetened or restricted substances. Always read ingredient labels carefully and research manufacturing processes before purchasing processed or non-organic foods, or products derived from conventionally grown or raised plants and animals.

Processed foods contribute to metabolic syndrome, which can lead to chronic diseases that gradually deteriorate overall health and increase susceptibility to acute illness. Additionally, processed foods create a biological environment that supports the growth of cancer cells, which might otherwise be eliminated by a healthy immune system. Autoimmune diseases, such as Crohn’s disease, may also result from long-term consumption of processed foods, which can damage the gut lining (“leaky gut”), allowing bacteria to enter the bloodstream, disrupt immune regulation, and trigger chronic inflammation.

3) Sweets: Avoid artificial or refined sweeteners, including sugar. The only sweets that may be consumed freely are fresh fruits; however, they should be eaten as a separate meal—not combined with other foods, and not blended or juiced. When a sweet taste is needed for cooking or food preparation, use only very small amounts of natural sweeteners such as raw, unpasteurized honey (typically composed of approximately 85% glucose and fructose and 15% other sugars, along with trace minerals including zinc, copper, iron, manganese, chromium, selenium, magnesium, calcium, and potassium; vitamins A, B1, B2, B3, B5, B6,

C, and E; and flavonoids such as quercetin and luteolin), natural stevia, monk fruit, maple syrup, or organic allulose (naturally found in figs and raisins). Otherwise, avoid eating or drinking sweets of any kind—including fruit—immediately before, during, or right after a regular protein- and grain-based meal.

4) Protein: Daily protein intake should be approximately 0.8–1.0 g per kilogram of body weight, regardless of whether the source is plant-based, seafood, or animal. Exceeding this amount can increase blood acidity and, over time, contribute to the thinning of bones and teeth.

Avoid consuming milk or commercially sold dairy products. Although fresh cow's milk naturally contains many nutrients—such as lactase (the enzyme that breaks down lactose, a sugar found only in mammalian milk), lipase (which digests fats), protease (which breaks down proteins), and lactoferrin (an antioxidant, anti-inflammatory, antiviral, and immune-regulating protein)—pasteurized and industrially processed homogenized milk loses most or all of these components. Pasteurization destroys the majority of naturally occurring enzymes. Homogenization causes fats to undergo extensive oxidation, forming lipid peroxides, which are toxic oxidized fats. These compounds promote the growth of harmful bacteria, disrupt the balance of intestinal microbes, and lead to the production of free radicals and foul-smelling gases in the digestive tract.

Casein, which makes up approximately 80% of the protein in cow's milk, coagulates immediately upon entering the stomach and is difficult to digest. There have been reported cases of infants dying within four to five days after being fed commercially available cow's milk instead of breast milk. Cow's milk has also been associated with ulcerative colitis, allergies, and other serious conditions such as leukemia and diabetes. Consumption of cow's milk by pregnant women may increase the risk of allergies in their children after birth. Lactose, the primary sugar in milk, requires the enzyme lactase for digestion. Lactase is abundant in infants but often deficient in adults. As a result, frequent consumption of yogurt or other dairy products by adults may worsen the intestinal environment, leading to the production of foul-smelling stool and gas due to incomplete digestion and toxin formation. Lactoferrin—a protein present in both breast milk and cow's milk that supports immune function, digestion, iron absorption, cancer prevention, and anti-aging—is efficiently absorbed in the immature stomachs of infants. In adults, however, it is largely broken down by the strong acidity of the stomach. Crohn's disease (ulcerative colitis) has been linked to excessive consumption of cow's milk and meat. In summary, cow's milk is not well suited for human consumption, particularly for adults. In addition, dairy cows are commonly artificially inseminated as early as 60 days after giving birth, while they are still producing milk. As a result, milk from pregnant cows may contain elevated levels of sex hormones. Consumption of such milk by prepubescent children may disrupt hormonal balance and potentially impair future fertility.

Refrain from eating animal meat, which contain blood-clotting fats, purine compounds that contribute to uric acid formation, choline (which can promote arterial plaque formation, vascular disease, and insulin resistance), excessive iron (which may act as a harmful oxidative agent when accumulated), and high levels of branched-chain amino acids (BCAAs)—leucine, isoleucine, and valine. These BCAAs account for roughly 20% of muscle mass and, when consumed in excess (particularly from corn or corn-fed animals), may be converted by the liver into glucose or liver fat.

Tryptophan—the rarest of the nine essential amino acids and a key precursor to serotonin—is found in foods such as fish, eggs, nuts, spinach, and soybeans. Limited consumption of eggs, whole fish and seafood is acceptable due to their favorable cholesterol profile and high nutrient density; however, their purine content should still be taken into consideration.

Plant-based proteins are recommended as primary protein sources because they contain no harmful fats or purines and are more economical and environmentally sustainable. With the exception of soybeans, most plant protein sources (including grains, vegetables, beans, seeds, and nuts) do not individually contain all nine essential amino acids. Therefore, combining different plant proteins within a meal is necessary to achieve amino acid completeness comparable to animal protein—without the associated cholesterol or purine burden. Importantly, plant proteins are not inferior to animal proteins in total amino acid content.

Be aware that beans (e.g., lentils, peas, chickpeas, green/red/black beans), nuts (such as macadamia nuts, walnuts, hazelnuts, and chestnuts), grains, and oil seeds (including almonds, lotus seeds, sesame seeds, melon seeds, pumpkin seeds, and flaxseeds) contain lectins—naturally occurring proteins that can cause digestive distress, nausea, or diarrhea. To reduce lectin content, these foods should be soaked overnight (preferably twice, based on the author's experience) before cooking or further processing through methods such as fermenting, sprouting, boiling, or roasting. Lectins are most concentrated in the outer layers of plants, where they serve as a natural defense against insects (see *Steamed Rice & Bean Recipe*, Section 12).

Mushrooms are excellent sources of vitamins, antioxidants, minerals, fiber, and protein. They support immune function, intestinal health, metabolic balance, and brain health. White mushrooms are particularly rich in vitamin D.

Finally, meals containing proteins and grains should always be accompanied by ample green vegetables to help reduce blood acidity and provide the intestines with abundant, beneficial fiber.

5) Starch: Avoid foods containing gluten—which can increase inflammation and uric acid levels—including certain grains such as wheat, rye, barley, triticale, and oats, as well as highly sugary foods. Consume starchy root vegetables (e.g., carrots, parsnips, sweet potatoes, and yams) in moderation, a few times per week. Gluten-free whole grains—such as brown

rice, wild rice, millet, quinoa, amaranth, buckwheat, and sorghum—may be consumed freely. Starches should always be eaten alongside fats, proteins, and green vegetables to help prevent rapid spikes in blood glucose and insulin. Avoid refined starches such as white rice, white flour, and grains or legumes that have had the bran and germ removed (see *Steamed Rice & Bean Recipe*, Section 12).

6) Fat (Lipids): Strictly avoid saturated fats—such as animal fats (especially shortening), dairy products (butter, cheese, cream, whole milk, ice cream, and ghee), margarine, coconut oil, and palm oil—which solidify at room temperature. Also avoid all refined cooking oils commonly sold on the market, which are often oxidized and/or contain high levels of trans fats—artificial, toxic fats produced during refining that cause severe inflammation. On ingredient labels, the term *"partially hydrogenated"* indicates the presence of trans fats.

Regular consumption of fresh avocados; steamed or stewed whole fish and seafood (which contain beneficial fats); and steamed whole grains, beans, oil seeds, and nuts can provide sufficient healthy, natural essential fats without contributing to insulin resistance or weight gain. Extra virgin olive oil, sesame oil, and fish oil may be consumed raw or added to prepared dishes in moderation if necessary, but should never be used for frying or exposed to air for extended periods.

Routine supplementation with fish oil (omega-3 fatty acids) is recommended, provided the supplements are free of synthetic additives. Omega-3 fatty acids are among the healthiest nutrients, yet they are commonly deficient in the body. Rather than being burned for energy, they are stored for critical use in cell membranes and nerve cells. Omega-3s help prevent fatty liver disease and heart disease, reduce depression, lower suicide and self-harm risk, decrease aggressive and resistant behaviors, and relieve stress and anxiety. They are found in fish oil, algae/seaweed, seafood, breast milk, walnuts, flaxseeds, and chia seeds.

The body stores fat in three main areas:

1. *Subcutaneous fat (hips and buttocks)*: Safe if under 10 kg
2. *Visceral and abdominal fat*: Safe if under 2.3 kg
3. *Liver fat*: Safe if under 0.1 kg (most liver fat accumulation is caused by added sugars)

7) Spices and seasonings: Always read ingredient labels carefully when purchasing processed or frozen foods. Avoid products that contain chemical additives such as synthetic flavors (e.g. MSG—Monosodium Glutamate— also known as flavour enhancer), preservatives, stabilizers, emulsifiers (a hallmark of processed foods), artificial colorings, bleaching agents, thickening agents, anticaking agents, humectants, acidity regulators, and leavening agents (see attached lists). Choose organic foods whenever possible to minimize exposure to pesticides, growth stimulants, and antibiotics.

Sea salt—which contains natural minerals that help offset some of its adverse effects—may be used sparingly. It should be stored in airtight containers and used as soon as possible to

minimize oxidation, which can produce highly toxic acids. Regular consumption of more than 11 g of salt per day may increase the risk of fatty liver disease and diabetes.

Fish sauce, soy sauce, and other seasoning sauces or spice blends may be used in limited amounts only if they are naturally brewed or produced and contain solely natural ingredients such as water, salt, and yeast.

All natural spices may be used freely—the fresher, the better—including onions, garlic, chives, ginger, pepper, chili, mustard, and especially turmeric. Turmeric, a member of the ginger family, contains curcumin, a polyphenol with potent antioxidant and anti-inflammatory properties. For added vitamin C and enhanced flavor, squeeze fresh lemon juice generously over cooked or prepared dishes just before serving.

8) Naturally fermented/cultured foods and fiber: Foods such as kimchi, pickles, mayonnaise, kombucha, mustard, horseradish sauce, fermented hot sauce, relish, and fermented salsa are rich in enzymes and probiotics. They should be consumed regularly, ideally daily, as long as they are free from synthetic additives. Probiotics support sugar and uric acid metabolism, while the fermentation process produces lactic acid, which promotes intestinal health, enhances the absorption of vitamins and minerals, acts as an antioxidant, strengthens muscles, reduces inflammation, and improves skin appearance.

Foods high in prebiotic fiber—such as artichokes, asparagus, bananas, garlic, barley, potatoes, onions, shallots, beans, blueberries, apples, flaxseeds, cocoa, nuts, seaweed, vegetables, and bran—should also be included in every meal. Fiber is essential for overall health, playing a critical role in maintaining both liver and intestinal function. Inulin-rich foods, including garlic, onions, bok choy, and asparagus, help slow sugar release, promote the growth of beneficial gut bacteria, and inhibit the Xanthine Oxidase enzyme, which is involved in uric acid production.

For digestive issues, consider taking supplements such as digestive enzymes, coenzymes (e.g., CoQ10), and a variety of probiotic strains on an empty stomach before meals. Ensure that all supplements are free from synthetic additives.

9) Drinks: Avoid distilled water and all unnatural beverages, including fruit juices. Exceptions include unsweetened organic cocoa and burdock tea. Drink a moderate amount of water upon waking and continue to hydrate regularly throughout the day to prevent thirst—without forcing yourself to drink. Alternatively, drink water at least three times daily on an empty stomach—upon waking in the morning and at least 30 minutes before lunch and dinner—whether or not you feel thirsty. This approach helps keep urine very light in color, prevents a dry or thirsty throat throughout the day, and avoids excessive urination (more than 5–6 times daily), which may indicate overhydration. Avoid drinking water immediately before, during, or right after meals, as this can dilute digestive juices. “Water” refers to filtered water free of impurities, bacteria, heavy metals, and chemicals, as well as natural

mineral water or alkaline water with a pH of 7.5–8.5. Water should be consumed at room temperature or warmer; ice-cold water should be avoided except in hot weather.

10) How to prepare and store food: Eat fresh, wholesome foods whenever possible, including all edible parts such as leaves, peels, roots, bulbs, bran, germ, skin, shells, bones, heads, and fats. Leaves are rich in minerals and vitamins; peels and shells contain antioxidant polyphenols; roots provide starches and enzymes. Fish skin contains injury-healing substances and, just beneath it, two highly beneficial omega-3 fatty acids—DHA (docosahexaenoic acid) and EPA (eicosapentaenoic acid)—which help prevent atherosclerosis. Fats found in fish and seafood are beneficial, whereas fats from land animals are considered harmful. Other parts of fish and seafood, including heads, organs, and bones, also provide essential nutrients the body needs.

Eating whole foods ensures a comprehensive supply of beneficial nutrients, including some that may still be unknown, in their natural proportions. Consuming fruits with their peels or skins supports antioxidation, rejuvenation, and immune function, as most vitamins and antioxidants are located just beneath the skin to protect plants from oxidation and decay. Food should be eaten immediately after peeling, cutting, cooking, or unpacking. Avoid chopping ingredients unnecessarily to minimize exposure to air and oxidation. Do not consume spoiled or expired food, or food that has been exposed to air for extended periods.

If cooking is required, boiling until just cooked or gently simmering in water is best, as boiling water limits temperatures to 100 °C (212 °F) and helps preserve nutrients. At most, foods may be roasted at temperatures below 110 °C (230 °F). Absolutely avoid frying, deep-frying, or stir-frying, as temperatures above 115 °C (239 °F) destroy enzymes, damage most nutrients, and can convert unsaturated fats into toxic trans fats. Do not use microwave ovens or pressure cookers, and always cook with low heat.

Prepare only enough food for each meal. Any leftovers should be tightly covered—airtight if possible—to minimize exposure to oxygen, refrigerated to slow oxidation, and consumed as soon as possible. Freezing food gradually degrades nutrients and should be used only as a temporary preservation method. Meat and fish frozen for more than two months should be discarded.

The following nutrients are susceptible to denaturation (reversible unfolding or loss of structure), degradation (irreversible fragmentation or loss of original structure), or decomposition (complete breakdown) when exposed to low heat:

- Vitamin C begins to degrade slowly at room temperature when exposed to air or water, but the process accelerates significantly with heat, starting around 30 °C (86 °F).

- Vitamin B1 starts breaking down at 40–60 °C (104-140 °F), especially in the presence of moisture, alkaline conditions, or certain metal ions. Vitamins B9 and B12 begin to degrade at approximately 100 °C (212 °F).

- Human enzymes begin to denature at about 40 °C (104 °F) and are destroyed between 48 and 115 °C (118 and 239 °F).

- Probiotics begin to die off at around 49 °C (120 °F), with most eliminated within minutes above 60 °C (140 °F).

- Omega-3 fatty acids (EPA/DHA) start degrading at roughly 50 °C (122 °F) and are highly susceptible to oxidation (rancidity) from heat, air, and light.

- Plant proteins are denatured by cooking, which improves digestibility (55–100 °C or 131-212 °F). However, overheating—especially above 100 °C with little moisture—can cause degradation, altering texture and potentially reducing nutritional quality.

- Animal proteins generally denature and shrink in the 40–60 °C (104-140 °F) range; connective tissue (collagen) breaks down into gelatin at 71–76 °C (160-169 °F), softening and moistening the meat; and a tender, shreddable texture is achieved between 82 and 96 °C (180 and 205 °F). For beef steaks in particular: Rare (49–54 °C or 120-130 °F); Medium-rare (54–57 °C or 130-134 °F); Medium (57–63 °C or 134-145 °F); Well-done(71 °C or 160 °F and above).

The most effective ways to preserve food are either to keep it alive (such as grains and beans, which can remain viable for years in their natural husks when properly dried) or to ferment it. Fermented foods, including cured meats, pickled vegetables, fish sauce, and soy sauce, can be stored for long periods while retaining beneficial enzymes, probiotics, and essential nutrients. To store food while minimizing nutrient loss, reduce exposure to heat, air, light, and water by using methods such as freezing, vacuum sealing, and storage in cool, dark, airtight containers. Avoid pre-cutting or washing produce until just before use, and favor quick cooking methods such as steaming rather than prolonged boiling, to preserve vitamins and minerals and prevent nutrient leaching.

11) Fasting: *[WARNING: Fasting is not recommended for growing children or premenopausal women, who may be more susceptible to hypoglycemia and cannot safely tolerate caloric deprivation. In general, premenopausal women tend to accumulate primarily subcutaneous fat rather than harmful visceral fat; therefore, fasting is typically unnecessary until after menopause.]*

Have meals only when you feel hungry, and eat only until you are 60–80% full. Avoid snacking between meals. Eating until about 60% full is ideal and is believed to prolong life by up to 1.5 times in the long run. Eating up to 80% full should be done only if you did not

consume enough calories the previous day. The sensation of hunger activates autophagy, detoxification, and cellular rejuvenation.

Practice daily fasting for at least 12 hours, consuming only sufficient water during this period. After approximately four months—once the body begins to experience clear, stable, and tangible benefits—this fasting window can be gradually extended to 16 hours per day (optimal for working-age adults), or even up to 20 hours if needed, depending on health status, age, living conditions, and work demands. Fasting for more than 14 hours per day helps increase autophagy, promotes continuous liver fat burning, improves insulin sensitivity, lowers insulin levels, supports weight loss, reduces inflammation, decreases the hunger hormone ghrelin, stabilizes blood sugar, enhances memory, improves stress resistance, slows the aging process, and may contribute to a longer lifespan. During the first week, feelings of hunger, discomfort, cravings, and the urge to return to old overeating habits are normal. By the second week, the body typically begins to adapt to the new regimen, and the process becomes easier, accompanied by feelings of satisfaction and well-being rather than struggle. During daily fasting periods, brief episodes of low energy may occur. In such cases, a short 10–15 minute nap, a glass of freshly prepared diluted lemonade (without sweeteners), or a serving of fresh fruit can help restore energy and improve overall well-being.

12) Meals: Drink water at least 30 minutes before meals if needed, and avoid drinking immediately before, during, or right after eating (see *Drinks*, Section 9).

Depending on a food's hardness, dryness, chewiness, or softness, chew each bite approximately 7 to 75 times, or until it is thoroughly ground and well mixed with saliva, to complete the first stage of digestion before swallowing. Foods with firmer textures generally require more chewing and are therefore preferable to very soft foods. Thorough chewing supports proper development of the jaw and facial bones, helps keep teeth aligned, improves blood circulation, activates brain cells, stabilizes the nervous system, enhances concentration, and stimulates the secretion of parotin, a hormone associated with rejuvenation and anti-aging. Chewing also promotes saliva production, which helps wash away oral bacteria, remove dental plaque, eliminate bad breath, and moisten the throat and digestive tract. Saliva eventually enters the bloodstream, further supporting circulation. The intestinal wall can absorb particles no larger than approximately 15 microns. After further breakdown in the stomach, food particles larger than this may ferment or decay in the intestines, producing toxins before being excreted. By chewing thoroughly, less food is wasted, and the body expends less energy processing and eliminating harmful byproducts. Thorough chewing also raises blood sugar gradually during eating, helping suppress appetite, prevent overeating, and support weight control. In addition, prolonged chewing can help neutralize parasites that may be present in raw or undercooked meat, fish, or vegetables.

Standard meals: Always include a serving of fermented food. Whenever possible, begin meals with fresh vegetables. Avoid eating again until you feel genuinely hungry, which

typically occurs after 4–6 hours.
- 50% whole grains (thoroughly soaked and steamed)
- 35% (fresh green vegetables + healthy fats + fermented foods—the fresher and less cooked, the better)
- 15% protein (primarily beans, with eggs, fish, or seafood as optional sides)

	Average contents		
	Protein	*Starch*	*Fat*
Beans	*20-30%*	*26-53%*	*1-3%*
Grains	*7-12%*	*65-75%*	*2-6%*
Oil seeds	*6-45%*	*1-45%*	*18-57%*
Seafood	*20-30%*	*0*	*0.5-12%*
Meat	*20-30%*	*0*	*3-30%*

Fruit meals: At least once a day, eat only fresh fruits without combining them with other foods. Avoid mixing sweet fruits with highly acidic fruits, and eat melons—including watermelon, honeydew, cantaloupe, green melon, etc.—separately. In general, the sweeter the fruit, the lower its vitamin C and nutrient content. Avoid eating again until you feel hungry, typically after 1–2 hours. Fruit meals may be included during the daily fasting period if you feel hungry or low on energy.

Meal times may be adjusted flexibly depending on your work schedule, health needs, and fasting routine. Vitamin supplements (free of synthetic additives) should be used only when natural food sources are limited.

Steamed Rice & Bean Recipe: Combine 1.5 cups of three types of beans (such as green, black, or red beans; chickpeas; peas; or lentils) with 4–5 cups of brown rice (whole grain with bran and germ intact) or a mix of two whole grains (such as rice, wild rice, millet, quinoa, barley, sorghum, or buckwheat), and ½ cup of nuts or seeds (such as almonds, sesame seeds, melon seeds, or pumpkin seeds). Place the mixture in a mesh sieve set near the top of a deep pot filled with water, and soak overnight, allowing lectins and other residues to settle at the bottom (see picture). The next morning, discard the soaking water and repeat the process for another 3–4 hours. After soaking, drain and rinse all ingredients thoroughly. Place the soaked beans, nuts, and grains in a rice cooker and mix well. Add water to the corresponding level—about one line per cup of ingredients (6–7 lines in total)—and cook as you would regular rice. (This dish alone provides protein, starch, fat, and fiber; simply add fresh green vegetables and a serving of fermented food to complete a balanced meal.)

13) Medicines, food additives, and addictive substances: All Eastern and Western medicines are inherently toxic. With the exception of antibiotics, most drugs focus primarily on rapid symptom relief rather than addressing the underlying root causes of disease, and therefore should be avoided whenever other options are available.

Most modern non-communicable diseases can be gradually improved and resolved over time through this dietary approach. Even fevers should generally be managed without medication. Cooling measures such as wearing light clothing, applying cold compresses to the forehead,

neck, armpits, and groin, using air conditioning, and drinking at least twice the usual amount of water can help prevent heat shock and dehydration. A higher body temperature enhances immune activity, so antipyretic medications should be used only when body temperature begins to exceed 39 °C (102 °F). At 40 °C (104 °F), proteins in the blood may begin to denature, potentially forming clots that obstruct blood vessels and lead to coma.

Carefully research food production processes, read ingredient lists closely, and avoid purchasing foods that contain synthetic additives or known harmful by-products. Do not use banned or addictive substances, including added sugars, narcotics, tobacco, coffee, alcohol, or tea. Tea contains high levels of catechins, which can form tannins—an astringent substance that oxidizes easily when exposed to air or heat and converts into tannic acid. Tannic acid can harden proteins, thin the stomach lining, contribute to gastritis, damage DNA, and increase the risk of stomach cancer.

14) Eat a variety of foods: Because all foods contain both beneficial nutrients and substances the body does not need, regularly varying your diet gives the body time to eliminate or neutralize potential harmful effects associated with any single food. Pay close attention to how your body responds to different foods, and identify those you may be allergic to or have difficulty digesting—such as dairy, soy, wheat, gluten, peanuts, cashews, or sunflower seeds—so they can be avoided if necessary. Experiment with different ingredients, portion sizes, and cooking methods to determine what best supports your health. Eat and drink in ways that align with your individual health status, constitution, age, lifestyle, and environment.

Although the guidelines presented here are intended to be scientific and broadly applicable, flexibility and creativity are essential in their application. No two bodies are exactly alike, and no single diet is suitable for everyone. Occasional deviations from these guidelines—such as eating out, attending social events, or temporarily relaxing fasting schedules during periods of fatigue or low energy—can be beneficial. Such flexibility may help assess the body's resilience, support recovery and adaptation, and replenish nutrients that may be temporarily lacking. Over time, however, consistently following this dietary approach helps provide the nutrition and rest the body needs to cleanse itself and maintain long-term balance and stability.

15) Sleep, exercise, air, sunlight, and body temperature: Getting 7–9 hours of sleep each night, along with a brief 5–15 minute rest when needed, is essential. After regular meals, a 15-minute walk or light activity—such as sweeping the floor, clearing the table, or washing dishes—followed by a 20–30 minute nap is recommended. Deep sleep (non-REM sleep) supports weight management, muscle toning, healthy and youthful skin, and cancer prevention.

Regular, moderate physical activity is necessary throughout the day. Exercise should not leave you feeling fatigued for hours afterward. Aim for at least a few minutes of movement

every hour, especially if you spend long periods sitting, lying down, or standing still. Activities such as manual labor or walking are particularly beneficial, as they promote lymphatic circulation and stimulate the production of new mitochondria, helping rejuvenate the body. Strenuous exercise and intense sports should be avoided, as they may cause more harm than health benefits.

Daily exposure to early morning sunlight for 10–15 minutes supports vitamin D production and calcium absorption. During the rest of the day, protect your skin and eyes from strong sunlight by wearing appropriate clothing and sunglasses.

Air can be thought of as "free food." Maintaining partial awareness of your breathing during daily activities helps ensure adequate oxygen intake, supporting both physical endurance and mental well-being. This also implies avoiding excessive anger or intense emotional states, which waste energy that could otherwise be used more effectively, especially considering that the brain already consumes approximately 25% of the body's total energy, even during sleep. At the same time, avoid overbreathing, which can lead to hyperventilation and oxygen imbalance. Regular showers may help facilitate breathing through the skin.

Maintaining an optimal body temperature of approximately 37–37.5 °C (99-99.5 °F) is important, as immunity can decline rapidly below this range, increasing overall health risks.

16) Additional Health Practices:

- *Breast Massage*: For women, five minutes of daily breast massage while following this diet may promote blood and lymph circulation and could help reduce the risk of breast diseases, including cancer.

- *Abdominal Massage*: Rubbing the abdomen clockwise, following the direction of stool movement in the colon, can help stimulate bowel movements.

- *Hair loss/graying*: Regular scalp massage, along with consuming beef liver (once a week), almonds (soaked overnight twice), black sesame seeds (soaked overnight twice), fermented foods (such as pickles, kimchi, and yeast-leavened products), and fresh dark-colored berries (black/blue), may help reduce hair loss and slow graying.

- *Sleeping on an Empty Stomach*: Going to bed with an empty stomach (while following this diet) may help prevent sleep apnea—caused by the trachea constricting to prevent food reflux—and reduce obesity, which can result from excess insulin secretion. Babies should avoid being breastfed immediately before bedtime for similar reasons. If hunger disrupts sleep, a light snack of fresh fruit is recommended. Avoid alcohol before bed, as it may worsen sleep apnea, reduce blood oxygen levels (PO_2), and increase the risk of heart attack in individuals with arteriosclerosis or coronary artery stenosis.

- *Water Intake for Obesity*: For overweight individuals, drinking approximately 1.5 liters (1,6 U.S. quarts) of water per day at around 20 °C (68 °F) can aid in burning calories.

- *Detox and Pain Relief*: Disruption of oxygen absorption caused by intestinal toxins can contribute to menstrual cramps, headaches, back pain, stiff shoulders, and chronic fatigue. This diet helps detoxify the intestines and alleviate these symptoms.

- *Sexual Health*: Salt, refined sweeteners (including sugar), and uric acid can contribute to erectile dysfunction. Alcohol, tea, and coffee may hinder erection by constricting blood vessels. Diabetes also affects male and female reproductive health. This diet can help reduce or eliminate these factors. Drinking 500 mL (0,5 U.S. quarts) of water one hour before sexual activity can hydrate the bladder, stimulate the prostate, and improve erectile function.

- *Hormonal and Skin Health*: Excess cholesterol increases androgen secretion, which may contribute to subcutaneous fat accumulation, acne, dandruff, hair loss, and body odor. Fasting can help reduce these symptoms, resulting in healthier, clearer skin.
- *Dairy Elimination*: Eliminating all dairy products can resolve common allergies within a few weeks. Dairy consumption has also been linked to Crohn's disease, leukemia, osteoporosis, and diabetes.

- *Kidney Health*: Drinking a glass of fresh lemon juice (diluted with water and optionally a natural sweetener, or best without sweetener) 30–60 minutes before meals should gradually help dissolve kidney stones.

- *Metabolic and Aging Benefits*: Following this diet may significantly improve and potentially resolve conditions related to metabolic syndrome, as well as common age-related symptoms such as gout, sexual/urinary disorders, gastric reflux, blurred vision, fatigue, osteoporosis, and even snoring. It also supports weight loss, physical endurance, and mental health—all without medications. This approach is cost-effective and less effort-intensive than many modern harmful diets and lifestyles.

17) Infants: Should be exclusively breastfed unless breastfeeding is impossible, and they should not be fed immediately before bedtime. Unlike bottle-feeding, breastfeeding requires the coordinated use of all 16 tongue muscles, promoting wider mouth development and a more open airway, which can reduce the risk of mouth breathing and misaligned teeth later in life. Mothers' diets and lifestyles during pregnancy and breastfeeding significantly influence their babies' development. After weaning, children should transition directly to adult foods rather than purees. This encourages the development of chewing muscles, the jaw, and the airway, helping prevent obstructive sleep apnea, snoring, and hypoxia in the future. Insufficient jaw space may lead to complications such as impacted wisdom teeth, which can collapse the jaw and airway further, increasing the risk of sleep apnea. Vegan diets may lack essential fats for infants, particularly omega-3 fatty acids (EPA and DHA), which are critical for healthy growth and development.

24. Oral health

Oral health affects our overall health and should, therefore, deserve reasonable attention for the benefit of both body and mind. Just approximately 10 minutes of daily oral self-care coupled with professional dental hygiene upon the appearance of dental plaques or lime deposits will not only help prevent bad breath and protect our teeth and gums for life but also prevent many other potential severe diseases caused by the spread of gum infection to other organs in our bodies.

Although made of soft and dissolvable lime, our teeth can still last a lifetime thanks to the hard enamel layer protecting their tops and the gum sealing their roots, which prevents lime erosion. Teeth decay very quickly when the enamel layer is cracked or punctured or when there is a leakage in the gum seal. This allows acids (contained in foods or released from decomposed foods stuck between teeth) to penetrate and gradually erode the soft internal dental lime and the lower jaw bone, commonly causing tooth loss and lower jaw bone reduction in old age. Cracked enamel or gum leakage results in tooth sensitivity when we consume excessive sour, cold, or hot foods (unless the root canal has been treated), which should serve as a reliable reminder for taking proper dental care and protecting what remains for life, even if imperfect.

The following is a very simple yet scientific and effective oral care method applicable to all ages:

1. Using a toothbrush and toothpaste with fluoride (fluoride hardens the dental enamel), brush your teeth and tongue after every meal or at least twice a day (after breakfast and dinner) for oral cleaning and disinfection. (Brushing your teeth and tongue before breakfast is still better than not if it is inconvenient to do so after breakfast.) Oral germs live on food stuck between the teeth (such as fruit, meat, and starch) or remained on the tongue (such as sugar and milk residues). They nest by building plaques or lime deposits on the tooth enamel, causing the gums to get infected, swell, and gradually retreat and expose the vulnerable tooth roots while forming acids that soften and gradually break down even the tough enamel. Tooth brushing should be done from the gumline toward the edge of the teeth (not in the opposite direction) to help prevent gum damage and recession, which can expose the more vulnerable lower portion of the teeth. This unidirectional brushing procedure takes merely about two minutes once you get used to it. In case tooth brushing or flossing is impossible after a meal, regular mouth rinsing with water should help wash away any acids formed by oral bacteria.

2. Floss after each meal/eating to remove food bits stuck between the teeth by inserting the thread into every tooth gap, pulling it against one tooth from the root to the top and then the other (do not use toothpicks, which not only fail to remove all stuck food bits effectively but will also gradually loosen and damage the teeth). Rinse your mouth

with water after flossing all the gaps. This procedure takes just about two minutes every time once familiar, keeps the gums healthy and free of infection to protect the teeth and jaw bones, and eliminates the otherwise resulted bad breath. You will normally see bleeding gums when you floss your teeth for the first time. This is a sign of gum infection. Just continue the routine after every meal for about three days, and the gums should heal and stop bleeding. This is the most important oral care activity, which should immediately follow tooth brushing.

3. Do not use your teeth to bite or break hard or brittle foods or objects (such as ice, crab/mussel/nut shells, and sugarcane). This can easily crack the enamel layer and permanently damage your teeth.

4. Eat adequate green vegetables every meal to avoid potential calcium depletion in the teeth caused by consuming proteins or starches, which is acid-forming.

5. Professional dental hygiene is recommended periodically or upon the appearance of dental plaques or lime deposits between the adjacent teeth.

25. Relevant health indicators

- **Waist circumference** (Western populations):
  - Optimal: Men <100 cm; Women <88 cm
  - Above these values: excess visceral fat and increased risk of cardiovascular disease, diabetes and cancer.

- **Liver fat:**
  - Safe: <0.1 kg
  - *Muscle fat*: the lower, the better.

- **Blood pressure:** Measure during sleep (using ABPM) or immediately upon waking.
  - Optimal: <16/10.7 kPa (120/80 mmHg)
  - High-normal: 16-17.2 / 10.7-11.2 kPa (120–129 / 80–84 mmHg)
  - Stage 1 hypertension: 17.3-18.5 / 11.3-11.9 kPa (130–139 / 85–89 mmHg)
  - Stage 2 hypertension: ≥18.7-12 kPa (140/90 mmHg)
  - Hypertensive crisis: ≥24/16 kPa (180/120 mmHg)

- **Fasting blood test panel:** *HDL, LDL, Triglycerides (TG), Homocysteine (Hcy), HbA1c, Insulin, Glucose, C-reactive protein (CRP), Uric Acid (UA), Calcium (Ca).*
  - ***HDL cholesterol*:**
    - 1.55 mmol/L (60 mg/dL): excellent cardiovascular protection
    - ≥1.30 mmol/L (50 mg/dL): desirable
    - <1.04 mmol/L (40 mg/dL) for men; <1.30 mmol/L (50 mg/dL) for women: increased cardiovascular risk
  - ***LDL cholesterol*:**
    - <2.59 mmol/L (100 mg/dL): generally low risk
    - ~7.77 mmol/L (300 mg/dL): possible familial hypercholesterolemia (dietary fat reduction advised)
    - 2.59-7.77 mmol/L (100–300 mg/dL) with TG >1.70 mmol/L (150 mg/dL): increased cardiovascular risk
  - ***Triglycerides (TG)*:**
    - Ideal: <1.13 mmol/L (100 mg/dL)
    - Normal: <1.70 mmol/L (150 mg/dL)
    - Borderline high: 1.70-2.25 mmol/L (150–199 mg/dL)
    - High: 2.26-5.64 mmol/L (200–499 mg/dL)
    - Very high: ≥5.65 mmol/L (500 mg/dL)
  - ***Small, dense LDL indicator*:** Estimated by TG / HDL ratio (higher values indicate greater risk)
  - ***HbA1c*:**

- <5.7%: normal
- 5.7–6.4%: prediabetes
- ≥6.5%: type 2 diabetes

- ***Glucose*:**
  - ≥5 mmol/L (90 mg/dL): increased metabolic risk
  - ≥5,56 mmol/L (100 mg/dL): impaired glucose tolerance
  - ≥7 mmol/L (126 mg/dL): diabetes
- ***Insulin*:**
  - <5 µU/mL: ideal
  - ≥15 µU/mL: severe insulin resistance
- ***HOMA-IR*** *(= Glucose × Insulin / 405):*
  - <2.8: very good insulin sensitivity
  - 2.8–4.3: normal
  - >4.3: insulin resistance risk
- ***Uric acid (UA)*:**
  - Optimal: <327 µmol/L (5.5 mg/dL)
  - Normal: <387 µmol/L (6.5 mg/dL)
  - High-normal: 387-428 µmol/L (6.5–7.2 mg/dL)
  - Alarm: >446 µmol/L (7.5 mg/dL)
- ***C-reactive protein (CRP)***:
  - Ideal: <0.3 mg/dL (3 mg/L)
  - Acceptable: <0.5 mg/dL (5 mg/L)
  - Alarm: >1.0 mg/dL (10 mg/L)
- ***Calcium (Ca)*:** Normal range: 2.20-2.59 mmol/L (8.8–10.4 mg/dL)

26. Uric-acid reducing supplements

Uric acid is produced primarily from three sources that should be avoided: fructose, alcohol, and animal purines—nitrogen-containing compounds found in DNA and RNA, body tissues, red meat, organ meats, and oily fish such as anchovies, sardines, and herring. Elevated uric acid levels promote fat production, contributing to increased waist circumference and fatty liver even in non-obese individuals. Uric acid is also an important indicator and early warning sign of diseases associated with metabolic syndrome. Although this diet should be sufficient to maintain safe and stable blood uric acid levels, the following supplements may be helpful as additional support, if needed:

- **Quercetin (Prebiotic):** A flavonoid in the polyphenol family with antioxidant, anti-inflammatory, immunoregulatory, and disease-preventing properties. Quercetin helps regulate mitochondrial activity, inhibits harmful AGE (Advanced Glycation End-products) formation, blocks the Xanthine Oxidase enzyme responsible for uric acid production, lowers blood pressure, and reduces LDL cholesterol. Rich sources include cocoa, blueberries, red tomatoes, apples, berries, onions (purple onions, chives), celery, broccoli (and broccoli sprouts), large leafy greens, and dill.

- **Luteolin (Prebiotic):** Another flavonoid with antioxidant, anti-inflammatory, cardiovascular, neuroprotective, and potential anti-cancer effects. Luteolin inhibits Xanthine Oxidase, reducing uric acid production, and helps prevent pancreatic beta-cell dysfunction. Food sources include chrysanthemum, green peppers, celery, citrus fruits, broccoli, thyme, mint, rosemary, and oregano.

- **DHA (Docosahexaenoic Acid):** A highly effective omega-3 fatty acid that combats the metabolic effects of fructose, reduces inflammation in the body (including the brain and intestines), and supports brain health by increasing BDNF (Brain-Derived Neurotrophic Factor) for new nerve cell growth. Found in fish oil, seaweed, and eggs. Recommended intake: 200–300 mg/day.

- **Vitamin C:** A powerful antioxidant essential for growth, tissue repair, and wound healing. Vitamin C supports immune function, aids iron absorption, helps control gout, and lowers serum uric acid by increasing renal excretion and reducing reabsorption. Abundant in citrus fruits.

- **Chlorella (Platelet Algae, Prebiotic):** A single-celled freshwater algae, particularly *Chlorella vulgaris*, with uric-acid–reducing and anti-inflammatory properties. Chlorella helps reduce weight, blood sugar, C-reactive protein, and triglycerides, improves insulin sensitivity and liver function, and supports mental health by addressing inflammation-related

conditions such as depression. It also aids detoxification by binding heavy metals, pesticides, and other harmful compounds for elimination from the body.

27. Toxins and heavy metals

- The larger the fish or seafood, the higher its concentration of ***methylmercury*** due to bioaccumulation.

- ***Polychlorinated biphenyls (PCBs)*** and ***dioxins*** accumulate primarily in animal fats.

- ***Heavy metals*** tend to accumulate in plants, where they can inhibit photosynthesis.

- ***Corn-fed beef*** contains marbled fat and is associated with excessive omega-6 fatty acids (which promote inflammation) and high levels of branched-chain amino acids—valine, leucine, and isoleucine—which may contribute to fatty liver disease. Pasture-fed beef, by contrast, has a more uniform texture and color (pink), with lower omega-6 fats and fewer branched-chain amino acids, making it a healthier option.

- Free-range eggs are generally healthier and have darker yolks compared with ***factory-farmed eggs***.

- The ideal ***omega-3 to omega-6 ratio*** is approximately ***1:1***. Excess omega-6 intake promotes inflammation. ***Corn-fed animals*** and ***farmed seafood*** are typically high in omega-6 fats and branched-chain amino acids.

- Olive oil has a boiling point of approximately 190°C (374 °F) and a relatively low smoke point (~160°C or 356 °F) compared with saturated fats. When heated beyond the smoke point, unsaturated fats with *cis* double bonds can convert into toxic ***trans fats***. Saturated fats, which lack double bonds, are more stable at high temperatures and do not form trans fats.

- ***Polycyclic aromatic hydrocarbons (PAHs)*** enter the body through inhalation of vehicle exhaust, tire wear particles, or charcoal smoke, as well as through consumption of grilled or smoked meats. PAHs can bind to DNA radicals, generating oxidative damage that may lead to mutations and cancer.

- Glycation reactions occur when carbohydrates react with proteins (amino acids) in the body or with fats at high temperatures during frying, sautéing, grilling, processing, or sterilization. These reactions form ***advanced glycation end products (AGEs)***, which contribute to aging and may increase cancer risk.

- ***3-MCPD (3-monochloropropanediol fatty acid esters)*** form when free fatty acids interact with chloride ions (from salt) at frying temperatures above 204°C (399 °F).

These compounds are highly toxic to the kidneys and testes and may damage the liver and other organs.

- ***Glyphosate herbicides*** contaminate many crops. They inhibit amino acid synthesis in plants, disrupt human gut microbiota (potentially causing leaky gut and inflammation), interfere with methylation processes (leading to epigenetic changes and obesity in offspring), and have been linked to cancer.

- ***Atrazine (or Buctril)*** is an herbicide that inhibits photosynthesis and has been associated with birth defects, mitochondrial dysfunction, insulin resistance, altered methylation reactions, and epigenetic effects in animal studies.

- The butter-flavoring agent ***diacetyl***, used in products such as toffee and popcorn, can decompose into ***acetaldehyde*** when inhaled. Acetaldehyde is toxic to the liver and lungs and can cause obstructive bronchiolitis, leading to permanent airway scarring.

- ***Potassium bromate***, used to increase firmness in bread and baked goods, is a known carcinogen.

- Many so-called **"*natural flavors*"** are nonpolar compounds and must be dissolved using polar additives such as ***polysorbate 80*** (emulsifier), ***propylene glycol*** (solvent), or preservatives like ***BHA (butylated hydroxyanisole)***. These substances may pose health risks.

- Emulsifiers such as ***lecithin*** (in chocolate), ***polysorbate 80*** (in shortening), ***carrageenan*** (in ice cream), and ***carboxymethylcellulose*** (in salad dressings) act like detergents that can strip the protective mucin layer from the intestinal lining, increasing the risk of intestinal disease, leaky gut, and food allergies.

- ***Growth hormones*** used in livestock are associated with an increased risk of breast and prostate cancer in adults and early breast development in children.

- ***Bisphenol A (BPA)***, used in plastic and nylon food containers and functioning indirectly as a preservative, has been linked to obesity and insulin resistance.

- ***Paraben preservatives***, used in cosmetics and foods (e.g., cereals and baked goods), may alter epigenetic regulation and reduce fertility in women.

- Preservatives ***BHA (butylated hydroxyanisole)*** and ***BHT (butylated hydroxytoluene)***, commonly found in potato chips, processed cereals, and meats, have been officially classified as carcinogenic to humans.

- ***Propyl gallate***, a preservative used in fatty foods such as sausages, vegetable oils, soup bases, and chewing gum, has been linked to Parkinson-like effects in animal studies.

- ***Nitrates and nitrites***, commonly used in processed meats such as bacon and sausages, are associated with an increased risk of stomach and intestinal cancers.

28. Common food additives and preservatives

COMMON FOOD PRESERVATIVES

	Preservative	Foods found in	Preservative	Foods found in
ANTIMICROBIALS	Ascorbic acid (Vit. C)	Fruit products, acidic foods	Potassium Sorbate	Cheeses, syrups, cakes, processed meats
	Benzoaic acid	Fruit products, acidic foods, margarine	Propionic acid	Breads & other baked goods
	Butylparaben	Beverages, dressings, relishes	Propylparaben	Beverages, cakelike pastries,relishes
	Calcium Lactate	Olives, cheeses, frozen desserts	Sodium benzoate	Fruit products, acidic foods, margarine
	Calcium Propionate	Breads & other baked goods	Sodium diacetate	Baked goods
	Calcium Sorbate	Cheeses, syrups, mayonnaise, margarine	Sodium erythorbate	Cured meats
	Citric acid	Acidic foods	Sodium nitrate	Cured meats, fish, poultry
	Heptylparaben	Beverages, dressings, relishes	Sodium nitrite	Cured meats, fish, poultry
	Lactic acid	Olives, cheeses, frozen desserts	Sodium propionate	Breads & other baked goods
	Methylparaben	Beverages, dressings, relishes	Sodium sorbate	Cheeses, mayonnaise, processed meats
	Potassium Propionate	Breads & other baked goods	Sorbic acid	Cheeses, fruit products, syrups
ANTIOXIDANTS	Ascorbic acid (Vit. C)	Fruit products, acidic foods	EDTA (ethylenediamine tetraacetic acid)	Dressings, margarine, canned vegetables
	BHA (butylated hydroxyanisole)	Bakery products, cereals, fats, oils	Propyl gallate	Cereals, snacks, pastries
	BHT (butilated hydroxytoluence)	Bakery products, cereals, fats, oils	TBHQ (Tertiary butyl hydroquinone)	Snacks, fats, oils
	Citric acid	Fruits, snacks, instant potato	Tocopherols (Vit. E)	Oils & shortenings

Reference: Toronto Mount Sinai Hospital - Printed material

COMMON FOOD ADDITIVES

Additive	Foods found in	Purpose	Additive	Foods found in	Purpose
Acetic acid	Dressings, vinegar,sauces	Acidity control	Iodine	Salt	Nutrient
Acetone peroxide	Fruit/gelatin desserts	Bleaching agent	Iron	Grain products	Nutrient
Adiptic acid	Pie filling,dressing,gelatin	Acidity control	Iron Ammonium Citrate	Salt	Anticaking agent
Ammonium alginate	Processed foods	Thickening agent	Karaya gum	Frozen desserts, puddings	Thickening agent
Annato extract	Cheeses	Color	Lactic acid	Milk products	Acidity control
Arabinogalactan	Fillings, puddings	Thickening agent	Larch gum	Fillings, desserts	Thickening agent
Ascorbic acid	Fruit products	Nutrient	Lecithin	Mayonnaise	Emulsifier
Aspartame	Low-calorie sweeteners	Artificial sweetener	Locust-bean gum	Ice cream	Thickening agent
Azodicarbonamide	Baked goods	Bleaching agent	Maltol	Strawberry, raspberry,soft drinks	Flavor enhancer
Benzoil peroxide	Flours, baked goods	Bleaching agent	Mannitol	Baked goods, frozen desserts	Antithickening, sweetener
Beta carotene	Margarine	Nutrient, color	Modified food starch	Pie fillings, gravies, sauces	Thickening agent
Calcium alginate	Baked goods	Thickening agent	Monocalcium phosphate	Baked goods	Leavening agent
Calcium bromate	Baked goods	Bleaching agent	Monoglycerides	Baked goods, ice cream	Emulsifier
Calcium phosphate	Baked goods, mixes	Leavening	Monosodium glutamate (MSG)	Chinese foods, frozen meats	Flavor enhancer
Calcium Silicate	Powdered foods, table salt	Anticaking agent	Niacinamide	Flour, rice, cererals	Nutrient
Caramel	Baked goods, ice cream	Color, flavor	Pectin	Jams, jellies	Thickening agent
Carob-bean gum	Ice cream	Thickening agent	Phosphates	Tart beverages, gelatin desserts	Improves tartness
Carrageenan	Frozen desserts, puddings	Emulsifier	Phosphoric acid	Soft drinks, desserts	Improves tartness
Carrot oil	Yellow foods	Color	Polysorbates	Many processed foods	Emulsifier
Cellulose	Fiber products, "lite" bread	Thickening agent	Potassium alginate	Frozen desserts	Thickening agent
Citric acid	Canned fruits, beverages	Acidity control	Potassium bromide	Baked goods	Bleaching agent
Citrus red no. 2	Red or yellow foods	Color	Potassium Iodide	Salt	Nutrient
Corn syrup	Many foods	Sweetener	Propylene glycol	Cake mixes, baked foods	Humectant
Cyclamates	Banned in USA	Artificial sweetener	Riboflavin	Flour, rice, macaroni	Nutrient, color
Dehydrated beets	Jelly, baked goods, others	Color	Saccharin	Low-calorie dietetic foods	Artificial sweetener
Dextrose	Fruit juices	Sweetener	Silicon dioxide	Dried foods	Anticaking agent
Diglycerides	Ice cream, peanut butter	Emulsifier	Sodium acetate	Tart foods	Acidity control
Dioctyl sodium sulfosuccinate	Mixes, processed foods	Emulsifier, flavor enhancer	Sodium alginate	Chocolate products	Thickening agent, stabiliser
Disodium guanylate	Canned meats, meat prod.	Flavor enhancer	Sodium aluminum sulfate	Baked goods	Leavening agent
FD&C Blue no.1	Foods, drugs, cosmetics	Color	Sodium bicarbonate	Baking soda	Leavening agent
FD&C Red no.40	Foods, drugs, cosmetics	Color	Sodium calcium alginate	Desserts, jellies	Thickening agent
FD&C Yellow no.5	Foods, drugs, cosmetics	Color	Sodium citrate	Tart foods	Acidity control
Folic acid	Cereals, other foods	Nutrient	Sodium stearyl fumarate	Baked goods	Bleaching agent
Fructose	Fruits, candy, other sweets	Natural slow sweetener	Sorbitan monostearate	Cake mixes	Emulsifier
Gelatin	Desserts, canned products	Thickening agent	Sorbitol	Diabetic/sugar-free foods	Natural slow sweetener
Glucose	Juices, sweets	Sweetener	Tagetes	Yellow foods	Color
Glycerine	Toaster foods, flaked coconut, marshmallows	Humectant	Tartaric acid	Pie fillings, tart foods	Acidity control
			Thiamine	Breads, cereals, flour	Nutrient
Glycerol monostearate	Cake mixes, baked goods	Humectant	Titanium dioxide	Frostings, other white foods	Color
Guar gum	Gravies, sauces, pet foods	Thickening agent	Tocopherols (Vitamin E)	Baked goods, milk, cereals	Nutrient
Gum arabic	Dry mixes, foods with fats	Emulsifier, stabiliser	Trogacanth gum	Puddings, sauces, mixes	Thickening agent
Gum ghatti	Sauces, frozen desserts	Thickening agent	Ultramarine blue	Many foods	Color
Hydrogen peroxide	White foods	Bleaching agent	Xylitol	Sugar-free children's vitamins	Sweetener (side effect)
Hydrolised veg. protein	Processed meat, stock,...	Flavor enhancer	Yellow prussiate of soda	Baked goods, mixes	Anticaking agent

Reference: Toronto Mount Sinai Hospital - Printed material

29. Relevant medical information

- **Signs of good health:** Indicators include healthy skin, a slim waistline, and well-functioning liver and intestinal systems. Accelerated physical aging is a sign of poor health and often reflects excess visceral fat and underlying metabolic syndrome.

- **5 essential nutrient types:** These nutrients must be obtained regularly from food, as the body cannot synthesize them:

1. *Nine essential amino acids*
2. *Dietary fiber* (soluble and insoluble)
3. *Two essential fatty acids*:

* *Omega-6***:** Linoleic acid (LA), obtained from corn, soybeans, nuts, and seeds.
* *Omega-3***:** Alpha-linolenic acid (ALA), found in flaxseed, chia seeds, walnuts, soybeans, and canola. Long-chain omega-3 fatty acids, EPA and DHA, can be synthesized from ALA in the body, but only in limited amounts. Therefore, it is important to obtain them directly from marine sources such as fatty fish, fish oil, or certain algae.

4. *Vitamins*
5. *Minerals*

- **Enzymes:** are protein-based catalysts involved in all vital biological processes, including cognition, respiration, heartbeat regulation, immunity, and muscle movement. They function most efficiently at normal body temperature (approximately 37–40 °C or 99-104 °F). An abundant and stable enzyme supply is associated with good health. This diet is designed to help maintain enzyme availability throughout the natural lifespan.

- **Survival gene group:** These protective genetic pathways are activated during states such as hunger, cold exposure, and non-REM sleep. Their activation supports cellular repair, slows aging, and enhances recovery from illness. This dietary approach encourages regular activation of these pathways to help maintain metabolic health, vitality, and resilience throughout the natural lifespan.

- **Insulin:** is a hormone whose primary function is to store energy for later use. It is secreted by the pancreas in response to rising blood glucose levels, allowing glucose to enter liver and fat cells for energy storage. Most other tissues can absorb glucose without insulin. When glucose availability is low and insulin levels fall, fat tissue releases stored fatty acids into the bloodstream. The liver converts these fatty acids into ketones, which are then released into the blood and used by most cells as an insulin-independent energy source.

Chronically elevated insulin levels can impair blood vessel function and may promote cancer growth. Excess insulin also stimulates smooth muscle proliferation, narrowing coronary and

renal arteries and increasing the risk of myocardial infarction and kidney failure. Under normal conditions, insulin and leptin work together to counterbalance ghrelin, helping regulate appetite and body weight. Leptin, secreted by fat cells, signals satiety to the brain, while ghrelin, secreted by the stomach, signals hunger.

- **NO (Nitric Oxide):** is a signaling molecule naturally produced by the body. It dilates blood vessels, lowers blood pressure, and improves circulation. NO also facilitates insulin delivery to cells and enhances glucose uptake, allowing glucose to be stored as glycogen. In the nervous system, nitric oxide helps prevent pathological tau protein formation, a key marker associated with Alzheimer's disease.

Elevated uric acid levels and excessive salt intake reduce nitric oxide availability. This reduction contributes to insulin resistance, hypertension, cardiovascular disease, diabetes, erectile dysfunction, and impaired neurotransmission, which may lead to cognitive decline.

- **Blood lipids (fats):** Because lipids are insoluble in water, they must be packaged into lipoproteins for transport through the aqueous environment of the bloodstream. Lipoproteins consist of two primary types:

1. *Triglycerides (TG)*: is also known as neutral fats. Elevated triglyceride levels increase the risk of cardiovascular diseases, including atherosclerosis, myocardial infarction, and stroke. Triglycerides are the primary components of both visceral fat (mobilized first for energy) and subcutaneous fat (stored for longer-term energy use), accounting for approximately 95% of total body fat. Most triglycerides in the body are synthesized by the liver and intestinal cells. Excess triglycerides circulating in the bloodstream are ultimately stored in adipose tissue.

2. *Cholesterol*: is essential for cell membrane integrity and serves as a precursor for steroid hormones. The body can synthesize cholesterol endogenously. Circulating cholesterol is commonly categorized into HDL ("good" high-density lipoprotein) and LDL ("bad" low-density lipoprotein). LDL particles exist in 2 different subtypes. Type A (large, buoyant LDL) accounts for approximately 80% of LDL particles and is generally considered neutral with respect to cardiovascular risk, as it is less likely to contribute to arterial plaque formation. Type B (small, dense LDL) represents about 20% of LDL particles but is strongly associated with an increased risk of myocardial infarction. For this reason, total LDL concentration alone is not a reliable indicator of metabolic syndrome or cardiovascular risk.

Triglycerides (TG) are often more metabolically harmful than LDL and serve as a useful indicator of liver health. Both small, dense LDL (LDL-B) and triglycerides tend to increase with the consumption of sugar and refined carbohydrates, whereas large, buoyant LDL (LDL-A) typically rises in response to higher fat intake. Elevated triglycerides combined with low HDL levels indicate impaired clearance of fat from the blood.

- **Glucose:** is a simple sugar (monosaccharide) that circulates in the blood and is commonly referred to as blood glucose or blood sugar. Blood glucose regulation is influenced by diet, physical activity, sleep quality, stress levels, and overall health. Inside cells, glucose is converted by mitochondria into ATP (adenosine triphosphate, the cell's primary energy currency) through the Krebs cycle, releasing carbon dioxide (CO_2) and reactive oxygen radicals. These free radicals can damage or kill cells if not neutralized by cellular antioxidant systems, including peroxisome organelles, which contain high concentrations of antioxidant enzymes. (As ATP is used, it is converted into ADP—adenosine diphosphate—which must be recharged back into ATP to provide further energy. ATP is replenished most effectively during periods of rest and sleep.)

The efficiency of glucose production from different macronutrients varies, as reflected by the Thermic Effect of Food (TEF)—the proportion of energy the body expends to digest, absorb, and transport nutrients: Fat: 2–3% TEF (most efficient source of usable energy); Starch/sugar: 6–8% TEF; Protein: 25–30% TEF (least efficient for energy production).

Excess glucose is stored as glycogen in the liver and muscles or converted into fat—primarily triglycerides—and stored in adipose tissue. When dietary glucose is insufficient, the body can generate glucose from fat or protein through gluconeogenesis. Chronic exposure to elevated blood glucose leads to persistently high insulin secretion. Over time, cells reduce their sensitivity to insulin, forcing the pancreas to produce increasing amounts of insulin. This process results in insulin resistance and can progress to type 2 diabetes, in which glucose cannot efficiently enter cells, accumulates in the bloodstream, and triggers systemic inflammation.

Even mild or transient elevations in blood glucose can cause harmful effects, including:

1. Increased free radical production, leading to oxidative stress, elevated uric acid, and reduced NO.
2. Oxidation of fats in adipose tissue, increasing inflammation
3. Oxidation of LDL cholesterol, promoting arterial plaque formation
4. Impairment of cellular ATP energy production

Large blood sugar fluctuations are often more damaging than consistently elevated levels, as rapid spikes and crashes generate excess free radicals that harm tissues, blood vessels, and the nervous system, allowing inflammation to spread throughout the body.

Glucose and fructose can also bind to proteins (amino acids) and fats (during high-temperature cooking methods such as frying, baking, and grilling), forming advanced glycation end products (AGEs). AGEs make tissues stiff and inflexible, promote inflammation, and accelerate aging, contributing to many chronic diseases. While AGEs are continuously formed in the body, they are normally neutralized and eliminated by natural defense systems. This dietary approach helps keep AGE levels manageable.

- **Fructose:** is the sweetest sugar among all natural carbohydrates and has been described as a leading contributor to chronic disease in the 21st century, comparable to the roles of cigarettes and margarine in the 20th century. It stimulates uric acid production and promotes fat storage, leading to elevated blood lipids, non-alcoholic fatty liver disease (NAFLD), high blood pressure, impaired glucose tolerance and metabolism, obesity, insulin resistance, diabetes, gout, and metabolic syndrome.

Naturally occurring fructose found in plant sources such as fruits, honey, agave nectar, and vegetables (e.g., broccoli, artichokes, asparagus, and okra) is generally safe and does not significantly increase uric acid levels. This is due to its lower fructose content, slower absorption, and the presence of accompanying compounds that counteract uric acid production and promote its excretion, including potassium, flavonoids, fiber, and vitamin C.

In contrast, processed fructose sources—such as sucrose, dextrose, refined sugar, high-fructose corn syrup (HFCS, one of the sweetest and least expensive refined sugars), and canned fruit juices—significantly increase uric acid levels and are associated with harmful health effects. Fructose plays a role in energy storage and is metabolized primarily in the liver by the enzyme fructokinase, where it is converted into glucose. This process rapidly depletes ATP and causes uncontrolled increases in uric acid, leading to cellular damage. As a result, the body shifts into energy-storage mode, producing increasing amounts of fat—particularly liver fat—through the process of lipogenesis. Fructose also stimulates taste receptors and activates hunger signals, promoting cravings for food and drink even when additional energy is not needed. This indirectly contributes to insulin resistance through chronically elevated blood glucose levels and inflammation. These metabolic disturbances have been associated with mental illness, cognitive decline (including attention-deficit/hyperactivity disorder, ADHD), cardiovascular disease, and Alzheimer's disease, which has been proposed as a form of "type 3 diabetes" due to impaired insulin signaling in the brain.

Sucrose, a disaccharide found in sugar cane, sugar beets, and fruits, is broken down in the small intestine by the enzyme sucrase into fructose and glucose. The conversion of fructose to glucose—occurring mainly in the liver and, to a lesser extent, in the brain—can deplete nitric oxide and promote neuroinflammation, potentially contributing to suicidal ideation, cancer, stroke, infertility, chronic liver and kidney disease, erectile dysfunction, preventable blindness, and other disorders associated with elevated uric acid levels.

- **Salt:** is already present in sufficient amounts in natural animal- and plant-based foods and generally does not need to be added to meals. Excess salt is first absorbed into the bloodstream, where it increases osmotic pressure, causing water to be drawn continuously from other parts of the body and raising blood pressure. Elevated blood pressure increases the force with which blood cells collide with vessel walls, leading to cellular damage and the gradual hardening of blood vessels. This results in impaired circulation, increased heart rate,

and further elevation of blood pressure, creating a vicious cycle. The maximum allowable daily salt intake for adults is approximately 10 g for men, 8 g for women, and 6 g for individuals with high blood pressure.

- **Calcium:** is already adequately available in natural animal- and plant-based foods and does not necessarily require supplementation in the daily diet. What is needed instead is regular physical stimulation—such as walking, carrying weight, and thoroughly chewing food—to encourage bones and teeth to absorb and retain calcium. When blood calcium levels decrease, calcium is mobilized from bones and teeth to maintain balance. Moderate exercise, along with 10–15 minutes of exposure to mild morning sunlight, combined with an appropriate diet, can help replenish and maintain calcium levels in bones and teeth.

- **Free radicals:** are atoms or molecules that have lost an electron from their outer shell, resulting in an electrical imbalance. To regain stability, they tend to steal electrons from other molecules, triggering chain reactions that generate additional free radicals and render cells unstable and unable to function normally. Superoxide, lipid peroxides, ozone, hydrogen peroxide, and hydroxyl radicals are among the most dangerous free radicals. Some of these can damage cell membranes as well as DNA. Free radicals are major consumers of antioxidants and enzymes.

Oxidative radicals are free radicals that contain oxygen (e.g., superoxide O_2^- and hydroxyl radicals). Oxygen radicals are a subset of oxidative radicals in which oxygen itself is the electron-deficient atom.

Free radicals can be produced internally through normal metabolic processes, such as fat metabolism in the liver. During fat breakdown into ketones, reactive oxidants are formed and are normally eliminated through urine, sweat, or even respiration. However, when this process occurs too rapidly—such as during ketosis induced by prolonged or intense exercise, fasting, or a low-carbohydrate intake—oxidative stress may develop, leading to symptoms like fatigue and headaches. In addition, an excessive accumulation of ketones can increase blood acidity, potentially resulting in the serious condition known as ketoacidosis.

Free radicals are also generated by external factors, including alcohol, tobacco, fatty foods, sugar, salt, food additives, tea, coffee, cosmetic toxins, physical injuries, infections, psychological stress, overwork, sleep deprivation, late nights, and environmental exposures such as dust, ultraviolet radiation, chemicals, radiation, X-rays, and electromagnetic waves.

A limited amount of free radical activity is essential for health, as it plays an important role in eliminating invading bacteria, viruses, and fungi. To control oxidative damage, the body is equipped with powerful antioxidant defense systems. These include enzymatic antioxidants such as catalase, superoxide dismutase (SOD)—which typically declines after the age of 40—glutathione reductase, and glutathione peroxidase, as well as non-enzymatic antioxidants such as vitamins A, C, and E, coenzyme Q10, beta-carotene, and selenium.

- **Cells:** The human body contains approximately 60 trillion cells, which are continuously replaced through processes of recycling and regeneration supported by nutrients absorbed daily through the digestive system. In adults, an estimated 50–70 billion cells die each day as part of normal turnover.

Cells rely on three primary systems to protect themselves and maintain life:

1. The lysosomal system, which processes and recycles cellular waste;
2. The intracellular immune system; and
3. Autophagy, a self-cleaning and renewal process.

When the lysosomal and intracellular immune systems fail, cells may undergo programmed self-destruction to protect surrounding healthy tissue. One factor thought to interfere with this protective self-destruction in cancer cells is the presence of excessive free radicals and oxidants in the body, often associated with modern unhealthy diets and lifestyles. Caspases are a family of enzymes that play a critical role in regulating cell death and autophagy.

- **Carbohydrates (Glucid):** exist in three main forms:
    1. *Simple sugars (Monosaccharides)*: include glucose, fructose, galactose, and high-fructose corn syrup (HFCS), which consists of unbonded glucose and fructose.
    2. *Double sugars (Disaccharides)*: include sucrose (fruit sugar; glucose–fructose), maltose (brewer's sugar; glucose–glucose), and lactose (milk sugar; glucose–galactose).
    3. *Starch*: consists of polymerized chains of glucose.

Only simple and double sugars cause rapid spikes in blood glucose levels because they are digested and absorbed quickly in the duodenum. This leads to sudden increases in insulin, inflammation, and overall metabolic stress. These sugars also promote tooth decay because they are rapidly metabolized or fermented by oral bacteria. *Streptococcus mutans*, a primary tooth-decaying bacterium, can break the glucose–fructose bond in sucrose in approximately one nanosecond. Sodium fluoride in toothpaste can prevent tooth decay at concentrations as low as 0.1 parts per million. Although fructose does not directly raise blood glucose levels, it is a major contributor to insulin resistance in the liver and to metabolic syndrome.

Because starch contains many glucose bonds, it cannot be fermented in the mouth and is digested more slowly. It may even protect teeth by forming a temporary plaque-like coating on the tooth surface. There are two main types of starch:

1. *Amylose*: found mainly in beans, amylose has a linear glucose chain with two ends and is digested and absorbed slowly.
2. *Amylopectin*: found mainly in cereals, amylopectin has a highly branched glucose structure and is digested and absorbed more rapidly.

In general, consuming natural carbohydrates that retain fiber, bran, and germ—and contain no added sugars—helps maintain lower insulin levels. Dehusked cereals consist of three main components:

1. *Bran*: the outermost layer, rich in soluble and insoluble fiber, which encloses the germ and the starch grain.
2. *Germ* (the "magic pocket"): Located at one end of the starch grain near the stem, the germ can sprout into a new plant. It contains protein, polyphenols, flavonoids, vitamins, GABA, antioxidants, and trace compounds such as amines, purines, and phenolic acids. However, it oxidizes easily into quinones, which are no longer nutritious and have an unpleasant taste.
3. *Starch grain*: When separated from the bran and germ, starch can be preserved almost indefinitely, but it becomes a nutrient-poor, highly processed food.

- **Eight intracellular processes:** are continuously dependent on adequate nutrition and are tightly interdependent. When these processes function properly, they help optimize health and prolong lifespan. When they are impaired, they contribute to chronic metabolic diseases and a reduced lifespan.

1) *Glycation (Maillard reaction)*: is a fundamental process associated with aging. It occurs continuously and naturally in all living cells without the need for energy, nutrients, or enzymes and has been described as a major contributor to cellular and organismal decline. Glycation occurs when sugars such as fructose, glucose, or galactose come into contact with amino acids in proteins, leading to protein damage. This damage causes proteins to brown, stiffen, and lose flexibility. Glycation can also occur when these sugars react with fats at high temperatures during cooking methods such as frying, sautéing, stir-frying, or baking. When the rate of glycation exceeds the cell's capacity for waste removal, advanced glycation end products (AGEs) accumulate. Over time, AGEs disrupt the normal function of cells, tissues, and organs, contributing to visible signs of aging (such as wrinkled skin and cataracts) and chronic diseases, including diabetes when glycation affects the pancreas or liver.

Fructose-driven glycation is significantly more damaging than glucose-driven glycation. Glycation involving fructose generates approximately 100 times more reactive oxygen radicals and proceeds about seven times faster than glycation involving glucose. The fructose-derived compound methylglyoxal accelerates this process even further, occurring up to 250 times faster. As a result, fructose is considered a particularly potent accelerator of aging compared with glucose or starch.

2) *Oxidative stress*: occurs when the production of oxygen radicals exceeds the detoxification capacity of cellular defense systems, including the peroxisomes. Antioxidants—many of which the body cannot synthesize—help reduce oxidative stress, and these are often abundant in deeply colored natural foods. The brain is entirely dependent on a continuous oxygen supply and begins to lose function after approximately four minutes of

oxygen deprivation. In contrast, other tissues in the body may survive longer under low-oxygen conditions, including certain cancer cells, which can grow rapidly in hypoxic environments.

3) *Mitochondrial dysfunction*: Mitochondria are the energy factories of the cell, producing ATP by completely burning glucose and ketones while generating minimal oxygen radicals. Healthy mitochondria efficiently supply energy, but their function can be inhibited by high uric acid levels, low folate (vitamin B9), and excess fructose. High uric acid and elevated homocysteine (Hcy)—an amino acid formed during methionine metabolism—are indicators of weakened mitochondria. Excess glucose intake can overload mitochondria, leading to fat (triglyceride) accumulation instead of energy (ATP) production. In the liver, this contributes to fatty liver and insulin resistance; in the pancreas, it can lead to fat accumulation and insulin deficiency. Processed fructose is particularly harmful, generating roughly twice as much liver fat as glucose.

Organs with the highest energy demands, such as the brain and endocrine glands, rely heavily on mitochondrial function. Over time, oxidative stress weakens and damages mitochondria, which must then be replaced. Mitochondrial health is closely linked to longevity—the weaker the mitochondria, the sooner aging and cellular decline occur. Moderate physical activity is the most effective way to stimulate the production of new, healthy mitochondria and support overall cellular energy metabolism.

4) *Insulin resistance*: occurs when cells no longer respond effectively to insulin signals, usually due to chronically elevated blood glucose levels. This can lead to diabetes, cellular starvation, and organ dysfunction. Insulin resistance also blocks leptin signaling (leptin resistance) and allows ghrelin to dominate, causing uncontrollable hunger and excessive food intake. Additionally, insulin resistance impairs the kidneys' ability to excrete salt, contributing to high blood pressure, and is a central feature of metabolic syndrome. The most effective way to reduce insulin resistance is by lowering insulin levels, primarily through reducing the intake of processed foods.

5) *Cell membrane integrity*: Cell membranes consist of two lipid layers with a protein layer in between, and their proper function is critical for cell survival. Membranes can be damaged through two main mechanisms:

1. Lipid damage caused by toxins or oxidative stress.
2. Loss of lipid flexibility, which compromises membrane structure.

When the cell membrane is damaged, intracellular substances can leak out, leading to cell dysfunction or death. The subsequent cleanup process—such as macrophage activity—can exacerbate damage by releasing toxic cytokines that affect neighboring cells and tissues.

All dietary fats influence cell membranes. Saturated fats have no double bonds, which allows them to stack into lipid blocks and reduces membrane flexibility. The advantage of this

structure is that saturated fats are more stable at high temperatures and do not form trans fats. Unsaturated fats contain cis double bonds, which prevent stacking and maintain flexibility. However, they are more susceptible to oxidative damage and can form highly toxic trans bonds when exposed to high heat (above their smoke point). Therefore, when cooking at high temperatures, saturated fats are generally safer for health than unsaturated fats.

6) *Inflammation*: is an innate immune response of tissues to harmful stimuli, such as microorganisms, chemical or physical agents, and damaged cells. Its purpose is to eliminate the stimuli, remove dead cells, and restore tissue function. During inflammation, blood vessels dilate, circulation increases, and white blood cells migrate through vessel walls to destroy foreign substances. This process produces the five classic signs of inflammation: pain, redness, swelling, heat/fever, and dysfunction. While protective, inflammation can also cause harmful effects:

1. Damage to normal tissues: After eliminating invaders, inflammation can inadvertently destroy healthy tissue, leading to long-term complications (e.g., kidney disease after E. coli infection, coronary artery aneurysm after Kawasaki disease, or chronic issues post-COVID-19).
2. Autoimmunity: Molecular similarities between pathogens and normal tissues can trigger immune attacks on the body's own cells (e.g., rheumatism, kidney disease, or even mental illness after streptococcal infection).
3. Leaky gut: Chronic inflammation can increase intestinal permeability, allowing toxins and harmful bacteria to enter the bloodstream, which may contribute to insulin resistance, food allergies, and autoimmune diseases.
4. Inflammation from fat: Body fat, especially in the liver under conditions of excess sugar, can release palmitate lipids that promote inflammation.

Nutrition, metabolism, inflammation, and immunity are closely interrelated; dysfunction in one system can disrupt the others. Inflammatory responses also stimulate the adrenal glands to secrete cortisol, which reduces inflammation but can trigger damaged tissues to release histamine, contributing to allergic reactions. Although inflammation often presents with localized signs, it is fundamentally a systemic reaction affecting the entire body.

7) *Epigenetics*: Only about 15% of chronic metabolic diseases are directly caused by genetic inheritance. The remaining 85% are influenced by environmental factors, which can alter gene activity through epigenetic mechanisms. These mechanisms may inappropriately turn genes on or off, modifying the body's response to diseases and increasing the risk of developing additional health conditions. Nutrition plays a key role in regulating epigenetic processes and can help influence gene expression in a beneficial way.

8) *Autophagy*: is the cellular process of removing old organelles (especially mitochondria), damaged proteins, and other biological waste to maintain cellular health and slow aging. This process is particularly important in the brain, which consumes the most energy and contains a high density of mitochondria, oxygen radicals, and accumulated cellular damage.

Omega-3 fatty acids, essential for brain health, are also easily oxidized, generating waste that must be cleared. Because the brain has limited storage capacity for such waste, it relies on nightly sleep to perform extensive cleanup.

Fasting supports autophagy by lowering insulin levels and increasing ketone production—two key factors that promote this critical cellular maintenance process. Ketones, which are energy molecules derived from fat, signal that resources are scarce. This prompts cells to initiate a self-cleaning and recycling process (autophagy) to maintain cellular function, remove waste, and enhance resilience.

- **DNA and Genes**: DNA records the evolutionary history of life, a process echoed during gestation as eggs develop into embryos and ultimately into complete organisms. A gene is a specific segment of DNA that contains the instructions for producing a particular protein or RNA molecule. (RNA is single-stranded, uses the nucleotide uracil [U] instead of thymine [T], and contains the sugar ribose instead of deoxyribose.) The human genome contains approximately 3 billion DNA base pairs (A–T and C–G) arranged in countless sequences. It includes roughly 20,000–25,000 protein-coding genes, as well as numerous pseudogenes and non-coding RNAs.

Genes can be turned on or off depending on the function of the cell, tissue, or organ. This on/off state is not necessarily fixed throughout life; it can change in response to environmental factors and the needs of the individual (such changes also require enzymes).

- **Liver:** The liver plays a central role in metabolism and detoxification. It processes and stores nutrients and energy, releasing them into the bloodstream as needed. It supports immunity, secretes bile to aid digestion and fat absorption, and breaks down toxins in the blood. Residual waste is transported to the kidneys via blood for excretion in urine or to the intestines via bile for excretion in stool.

The liver also metabolizes excess alcohol, which is not fully absorbed in the stomach, converting it first into acetaldehyde—a potent toxin—before gradually breaking it down into acetic acid and then into water and carbon dioxide. This process generates free radicals. As long as acetaldehyde remains in the bloodstream, the body experiences “intoxication,” potentially accompanied by headaches and nausea.

A healthy liver contains only about 3–5% fat, whereas a fatty liver contains over 30% fat. Normally, only about 20% of blood glucose enters the liver (under insulin signaling) to be stored as glycogen. In contrast, 100% of fructose and galactose in the blood enters the liver without insulin, where they are converted into glucose for energy. This conversion depletes phosphate (from ATP), produces uric acid, reduces nitric oxide (leading to high blood pressure), and overloads mitochondria, ultimately creating liver fat from excess energy and contributing to insulin resistance. Signs of fatty liver include elevated insulin levels and increased ALT (alanine aminotransferase), an enzyme released into the bloodstream when

liver cells are damaged. Signs of impaired liver fat clearance include elevated LDL cholesterol in the presence of normal triglyceride and insulin levels.

- **Skin:** The skin consists of three layers, from outermost to innermost: the epidermis, dermis, and hypodermis. The outermost part of the epidermis, known as the stratum corneum or horny layer, is approximately 0.02 mm thick. It helps retain moisture and serves as a barrier against microorganisms and foreign substances. Even minor damage, such as scratching with a fingernail, can break the horny layer, allowing bacteria to enter and potentially trigger inflammation. Excessive scrubbing of the skin can also cause redness, irritation, or hyperpigmentation (dark spots).

Many skin-whitening cosmetics work by chemically exfoliating the horny layer, stimulating the growth of a new layer. While this can create an immediate youthful and smooth appearance, it also reduces the skin's ability to retain moisture and block harmful substances and ultraviolet rays. As a result, the skin becomes more susceptible to melasma, dark spots, and other forms of damage.

- **Intestinal tract:** The functions of the intestine include transport, digestion (breaking proteins into amino acids, carbohydrates into glucose, and fats into fatty acids and glycerol), nutrient absorption into the bloodstream, immune defense, and regulation of the body's water balance. The large intestine absorbs salt and water and, with the help of beneficial bacteria, produces vitamins from waste material.

The intestinal tract contains very little oxygen. Approximately 99% of intestinal bacteria are anaerobic, meaning they do not require oxygen. Like cancer cells, these bacteria proliferate by synthesizing raw materials on site without importing new materials or relying on oxygen-dependent metabolic processes. As a result, they produce large amounts of lactic acid through the anaerobic metabolism of glucose.

Intestinal bacteria metabolize about 25% of the food consumed, including dietary fiber. Although they do not directly contribute calories to the body, they enhance the overall efficiency of calorie absorption. While the stomach environment is strongly acidic, the intestinal environment is weakly alkaline due to pancreatic juice, which is strongly alkaline and is secreted into the duodenum (the first part of the small intestine) where it mixes with food.

The intestine contains hundreds of trillions of microorganisms, classified into approximately 300 types. These include beneficial bacteria (about 20%, such as *Bifidobacterium*), harmful bacteria (about 30%, such as *Clostridium*), and opportunistic or intermediate bacteria (about 50%). Opportunistic bacteria follow the dominant bacterial population and can contribute to either healthy or unhealthy digestion. One way to prevent intermediate bacteria from becoming harmful is through the consumption of fermented foods, which also provide abundant enzymes. Fermentation offers both nutritional supplementation and preservation by

inhibiting the growth of harmful microorganisms, while also improving flavor and digestibility.

Intestinal microorganisms produce approximately 3,000 types of enzymes. Beneficial bacteria generate antioxidant enzymes that neutralize free radicals, whereas harmful bacteria produce oxidants and break down indigestible food through abnormal fermentation, generating toxic gases that stimulate bowel movements. For this reason, both beneficial and harmful bacteria play essential roles.

Approximately 60% of the body's white blood cells reside in the intestines, where they produce large amounts of free radicals while combating bacteria, viruses, and cancer cells. Lactic acid bacteria help neutralize these free radicals.

The intestines function largely independently of the brain and are therefore often referred to as the "second brain." They are regulated primarily by the parasympathetic nervous system and function most effectively during rest and sleep.

- **Excretion:** The body eliminates toxins primarily through feces, urine, and sweat. Urine contains approximately 2% urea, a waste product formed during blood filtration by the kidneys, along with small amounts of chlorine, sodium, calcium, magnesium, phosphoric acid, creatinine, uric acid, ammonia, hormones, and other substances.

Sweat, which is secreted by sweat glands, contains salt and has a composition similar to urine but at much lower concentrations. Although its primary function is regulation of body temperature, sweating is also an important pathway for the excretion of accumulated heavy metals.

Toxins circulating in the body are transported to the liver for detoxification and are then excreted either through the kidneys via the bloodstream or through the intestines via the bile ducts. Under normal conditions, food takes approximately 24 hours to pass through the digestive tract; this may extend to 48 hours in cases of constipation, which can be harmful to overall health.

- **Metabolic syndrome (MS):** Only about 15% of chronic metabolic diseases are genetic in origin; the remaining majority are driven by environmental factors. Approximately 80% of obese individuals have metabolic syndrome, while the remaining 20% are considered metabolically healthy obese (MHO). In these individuals, most fat is stored in metabolically safer locations, such as subcutaneous adipose tissue under the skin, while energy is stored in the liver and muscles primarily as glycogen. In contrast, fat accumulation in the liver, skeletal muscle, visceral tissue, or other organs leads to tissue dysfunction and contributes to the development of metabolic syndrome. Liver fat, in particular, is one of the strongest predictors of diabetes risk. Fatty liver often progresses to fatty infiltration of the pancreas, impairing insulin production and regulation.

Chronic noncommunicable diseases associated with metabolic syndrome arise from abnormal cellular energy metabolism across multiple organs. These conditions began increasing sharply in the 1970s, coinciding with the widespread adoption of processed foods. During this period, the prevalence of mental health disorders such as depression and schizophrenia rose by approximately 20% within a single decade. Metabolic diseases, including diabetes and visceral obesity, are closely linked to mitochondrial efficiency in daily life and are typically accompanied by chronic, low-grade inflammation in their early stages. When an additional illness—such as COVID-19—is superimposed on this inflammatory state, it can trigger an overwhelming immune response, often referred to as a cytokine storm. It is the excessive cytokine response, rather than the virus itself, that causes the most severe tissue damage.

Dietary fiber plays an important role in maintaining gut integrity, helping to prevent increased intestinal permeability ("leaky gut") and excessive cytokine activation. Currently, metabolic syndrome–related conditions account for approximately 75% of total healthcare costs, largely driven by high sugar intake and the consumption of processed foods.

- **Cancer:** A tumor is an abnormal mass formed when cells within an organ proliferate excessively and harden into tissue. A tumor is considered benign if it remains smaller than approximately 1 cm in diameter and does not spread to surrounding or distant tissues. If it grows larger or spreads, it is classified as malignant, or cancerous.

Cancer is not merely a localized condition but a systemic disease that can affect the entire body. Toxins that accumulate as a result of unhealthy lifestyle habits can attach to cells throughout the body, acting like time bombs. Which of these cells eventually undergoes malignant transformation depends on an individual's genetic makeup and lifestyle factors. For example, liver cells—the primary site of detoxification—are at higher risk of tumor development with chronic exposure to alcohol or pesticides. Similarly, the stomach may be affected by certain dietary habits or long-term medication use; the lungs by cigarette smoking; and the colon by excessive meat consumption.

Enzymes play an important role in supporting immune function and helping suppress the growth of cancer cells. However, when enzyme activity becomes severely depleted, as often occurs in advanced stages of cancer, the body's ability to recover is significantly reduced.

- **Diabetes:** There are two main types of diabetes. Type 1 diabetes is an autoimmune disease in which the immune system attacks the insulin-producing cells of the pancreas. It typically develops in childhood or adolescence and results in little or no insulin production. Type 2 diabetes most commonly develops in adults and is characterized by insulin resistance and a relative deficiency of insulin. Over time, it can lead to serious complications, including diabetic retinopathy, peripheral neuropathy, and kidney disease. One of the key indicators of

diabetes is an elevated HbA1c level on blood testing, which reflects chronically high blood glucose levels.

- **Food allergies:** Under normal conditions, dietary proteins are broken down into amino acids in the intestine before being absorbed into the bloodstream. In cases of increased intestinal permeability, commonly referred to as “leaky gut,” partially digested or intact proteins may pass directly into the bloodstream. This can trigger an immune response in which white blood cells release histamine and other inflammatory mediators. Once the immune system becomes sensitized to a specific protein, it may continue to recognize that substance as a threat upon future exposures, resulting in persistent food allergies.

- **Blood pressure:** is best measured during sleep using an ambulatory blood pressure monitor (ABPM) or immediately upon waking, when sympathetic nervous system activity is at its lowest. Measuring at these times helps avoid the “white coat hypertension” phenomenon, in which blood pressure rises due to anxiety in clinical settings. Blood pressure readings consist of two values. Systolic pressure (the first number) represents the pressure exerted on arterial walls when the heart contracts, while diastolic pressure (the second number) reflects the pressure when the heart relaxes between beats.

High blood pressure is currently the leading cause of death worldwide. A 5-point increase in blood pressure is associated with an approximately 10% increase in the risk of death. Excess sugar intake inhibits the kidneys’ ability to excrete salt and can raise blood pressure more than salt itself. Elevated blood pressure caused primarily by salt intake or stress is most commonly seen in individuals with a slim waistline.

- **Sleep:** is one of the body’s most important metabolic activities. It plays a critical role in regulating hunger, food intake, metabolic rate, body weight, immunity, and uric acid levels. Adequate sleep also supports creativity, insight, decision-making, stress management, information processing, learning, and the effective organization, storage, and recall of memories.

Sleep occurs in repeating cycles of approximately 90 minutes, alternating between non–rapid eye movement (non-REM) sleep and rapid eye movement (REM) sleep. Non-REM sleep is primarily responsible for physical restoration and recovery. During this phase, the glymphatic system is activated, allowing the brain to clear metabolic waste—including beta-amyloid proteins associated with Alzheimer’s disease—and to transport nutrients. REM sleep plays a key role in memory consolidation and emotional processing.

Consistently obtaining 7–9 hours of sleep per night is essential for optimal health. Adults who sleep approximately 7–8 hours
per night have the lowest overall mortality rate and are considered to have the ideal sleep duration. Chronic sleep deprivation promotes inflammation and increases the risk of cardiovascular disease, cancer, sexual dysfunction, and depression. It also disrupts hormone

production, immune function, and glucose regulation, contributing to obesity, insulin resistance, metabolic syndrome, and diabetes. In addition, poor sleep impairs healthy metabolism in the brain, leading to memory loss, brain fog, confusion, dementia, and Alzheimer's disease, and ultimately reduces life expectancy. Excessive sleep can also be harmful. Sleeping too much is associated with increased inflammatory markers, reduced brain volume, and a higher risk of dementia.

During sleep, the supporting muscles and soft tissues of the throat, including the tongue and soft palate, relax maximally. In individuals with obesity, this relaxation—combined with increased neck mass—can narrow or obstruct the airway, leading to obstructive sleep apnea (OSA). OSA is associated with an increased risk of cognitive decline and dementia. The hormone melatonin promotes sleepiness, while serotonin plays a role in initiating sleep. Deficiencies in vitamin D and magnesium may contribute to insomnia. Tryptophan, one of the nine essential amino acids found in foods such as cheese, eggs, and nuts—especially almonds—supports natural sleep by serving as a precursor for serotonin and melatonin.

Appendix

Divide to rule

In the struggle for survival, many species have long understood that strength arises from unity. By acting together—whether for defense or attack—they increase their chances of survival. Humans share this instinctive capacity to unite and grow stronger, but we also possess a more dangerous skill: the ability to divide and weaken opponents, thereby making them easier to dominate, control, or conquer.

Understanding the mechanics of *divide and rule*—and recognizing how we ourselves can be drawn into such traps and thereby weaken from within—is therefore an essential form of practical life wisdom. Without this awareness, even the strongest or wealthiest families, communities, or nations risk fragmentation and collapse. Conversely, mastering this knowledge not only helps us avoid being manipulated into division but also enables us to preserve and reinforce existing solidarity.

For this reason, this chapter examines the fundamental divisive techniques humanity has employed throughout history in its pursuit of survival, power, or domination. These techniques have been used not only between nations but also within societies—between factions, individuals, families, and especially in spousal or in-law relationships.

To clarify the discussion, we will refer to two individuals, groups, or countries that are initially in a stable or cooperative relationship as **A** and **B**. (In some cases, A and B may also represent a government and its people during a period of peace.) A third party—an individual, faction, or nation seeking to divide A and B for its own purposes—will be referred to as **X**.

Typically, A and B fall into X's divisive trap only when at least one of them is unaware of, or unwilling to believe in, X's active role in fueling the escalating conflict between them. If both A and B clearly recognize X as the instigator, the divisive strategy fails. For each scenario discussed, this chapter will also propose the safest and most peaceful countermeasures available, aimed at minimizing harm to both A and B, taking into account X's relative power, resources, and advantages.

1) X Exploiting Existing Minor Conflicts Between A and B

This is the most commonly used divisive technique. It is often highly effective and requires little effort from X. There is scarcely a family, society, or nation without some degree of internal conflict, incompatibility, or latent tension. Under normal circumstances, such issues remain at the level of disagreement, dissatisfaction, or, at most, limited noncooperation. When left unprovoked, they may even serve a healthy function by encouraging adjustment, dialogue, or growth.

However, if X is in a position to inflame these minor contradictions—transforming dissatisfaction into resentment and resentment into hostility—A and B may be pushed into open conflict and begin harming one another. Once this occurs, former partners can quickly turn into rivals. In doing so, they not only weaken themselves individually but also lose their combined strength, thereby unintentionally granting X the opportunity to manipulate, exploit, dominate, or even destroy A and/or B at a later stage.

An effective guiding principle for A and B in this scenario is simple: ***Those who are instigated to divide can only lose. Only the instigator or exploiter of division truly wins.***

Even if A and B have already fallen into X's trap, become estranged, and lost their former unity, this reminder can still help them remain cautious and refrain from further weakening or harming one another. By doing so, they may at least preserve their remaining individual resources. Such restraint can ultimately frustrate X's next likely move: provoking A and B to attack and exhaust or destroy each other entirely, thereby leaving X as the dominant power—victorious without ever having to fight directly.

A variation of this technique occurs when X is not the original instigator of the conflict but rather a third party who recognizes an opportunity to profit from it. In such cases, X may even present itself as an ally to A or B. For example, a lawyer, mediator, or advisor may exploit their influential position to exaggerate tensions and prolong conflict for personal gain, to the detriment of both parties. On a larger scale, when a weaker country (A) seeks assistance from a stronger power (X) against another country (B), A may become dependent on X and ultimately pay a far greater price than the aid received—sometimes even sacrificing its autonomy or sovereignty.

2) **X Openly Favoring A While Discreetly Mistreating B**

This technique is often employed when X cannot identify a sufficiently strong or exploitable conflict between A and B using the previous strategy. Instead, X openly favors A while subtly mistreating B. As a result, A comes to perceive X as benevolent and trustworthy, while B experiences the opposite. Over time, A naturally seeks closer association and cooperation with X, whereas B grows distant. This dynamic gradually erects emotional and practical barriers between A and B, driving them apart without the need for open confrontation.

Even when B correctly recognizes X's motives and intentions, it is often extremely difficult to convince A—especially if X consistently displays a façade of kindness toward B in A's presence. In such cases, A may begin to view B as suspicious, narrow-minded, or unfairly hostile toward X. This misunderstanding can agitate A and may ultimately lead to the breakdown of A and B's relationship.

In this divisive method, A is exposed to greater risk than B. B sees the situation more clearly and remains vigilant, whereas A, disarmed by preferential treatment, lowers their guard. Consequently, A stands to lose more—particularly if X is not genuinely more benevolent or trustworthy than B. After all, if X were truly acting in A's best interest, they would not undermine A's existing healthy relationship with B.

An even more destructive scenario may arise if B possesses resources or advantages comparable to X's and decides to respond in kind. In such cases, B may employ the same tactic against X, transforming the relationship among A, B, and X into a silent battlefield. Over time, this covert struggle can erode trust, exhaust emotional resources, and ultimately harm all three parties—whether or not A ever becomes aware of what is happening.

The most appropriate response in this situation is for B to inform A of X's intentions, once B is reasonably certain of them. If A believes B, then B has accomplished three positive outcomes:

1. Preserved and protected the relationship between A and B;
2. Shielded A from potential harm by X, which could occur once A places full trust in X; and
3. Prevented X from continuing or escalating a harmful act.

If, however, A does not believe B, then B has still achieved three important outcomes:

1. Provided A with critical information, thereby preventing future regret should X later betray or harm A;
2. Conserved time and emotional energy by disengaging from X's ongoing mistreatment; and
3. Recognized that A's relationship with B was insufficiently grounded in trust and substance, making unilateral withdrawal appropriate—at least until the situation becomes healthier.

This divisive technique is frequently observed in in-law, spousal, and step-family relationships. In such contexts, A and B may be two loving members of a family, while X is a third party who favors one (A) but not the other (B). In in-law dynamics, X may be a father-in-law, mother-in-law, sibling-in-law, son-in-law, or daughter-in-law. In step-family arrangements, X may be a step-parent, step-child, or step-sibling.

3) X Covertly Staging a Plausible Scene to Create Doubt Between A and B

This technique is executed entirely in the dark, with neither A nor B aware of—or even suspecting—the involvement of a third party, X. X's objective is to arrange circumstances in which B witnesses a scene where A appears to have acted wrongly or seems to be the most logical or probable suspect in a wrongdoing. Although A is fully aware of their own innocence, the plausibility of the staged situation—and the absence of a clear alternative explanation—inevitably plants doubt in B's mind.

If this doubt is not addressed and clarified in a timely manner, it may gradually erode trust and cooperation between A and B, potentially leading the relationship or alliance to a tragic breakdown in accordance with X's plan.

The following guiding principles may help B respond more effectively to this divisive technique:

- ***Moderate cooperation under doubt, combined with vigilance toward A, carries fewer immediate risks and preserves greater long-term potential for A and B to restore solidarity than allowing suspicion to turn them into rivals.***

- ***Observable phenomena rarely represent the full picture, and A's apparent actions do not necessarily reflect their underlying motives or intentions.***

The most effective response in this situation is for B to communicate directly and openly with A about the doubts that have arisen. Together, they should explore the possibility that A may have been framed or manipulated by a third party—an explanation that A themselves may not have considered.

This divisive technique is especially prevalent in politics. History, in Vietnam and worldwide, records countless cases of principled officials or loyal public servants (A) being framed by corrupt actors (X), leading to defamation, dismissal, imprisonment, or even execution by authorities (B). Similarly, wars between countries or conflicts between factions (A and B) have often been ignited by covert operations or fabricated incidents orchestrated by a third party (X) to provoke misunderstanding and hostility.

This method is also frequently used within families, particularly in spousal or in-law relationships, to estrange a spouse from their parents' family or even to drive couples apart through carefully planted suspicion and misinterpretation.

4) **X Exploiting a Stalemate to Bribe or Coerce A into Harming B**

This may be the most toxic and destructive form of division. In this scenario, X intervenes by "rescuing" A from a dead-end or desperate situation, presenting themselves as the only available solution. As a result, A is left with little or no real choice but to comply with X's demands—often illegitimate or illegal—and gradually becomes trapped under X's long-term control. This control is typically reinforced by incriminating evidence that X deliberately accumulates against A, leaving A with few avenues for escape.

Meanwhile, B may be placed in grave danger, often without any warning, as harm now comes from an unexpected direction—A, who may previously have been a trusted partner or ally. If, however, B becomes aware of both A's predicament and X's manipulative strategy, B may still choose to maintain a cautious and limited relationship with A. The purpose of doing so would not be trust, but damage control: to neutralize further destructive schemes by X and, if possible, to help A escape from the coercive stalemate.

This technique is commonly employed by criminal organizations. Many gangs (X), for example, require prospective members (A) to become addicted to drugs, commit serious crimes, or even murder before being fully accepted. Such acts permanently sever A's ties to law enforcement or society at large (B), ensuring long-term dependence and obedience to the gang through fear, guilt, and irreversibility.

5) **X Luring A into Leaving B and Joining X**

For this scheme to succeed, X must be able to offer A greater benefits, advantages, or pleasures than B, thereby making X appear more attractive.

a) When X's goal is simply to draw A away from B

In this case, the following motto can help B avoid harmful reactions toward either themselves or A:

Welcome those who come, and let go of those who leave.

Once A has made the decision to leave, B should calmly accept the separation and seek a new ally or partner. The primary risk for both A and B in this situation is the loss of an existing beneficial relationship, with no guarantee that the next partnership will be better. Beyond this uncertainty, no further harm is necessarily involved if the separation occurs openly and without malice.

b) When X persuades A to conspire against B before defecting

This scenario poses far greater danger to B. If A acts against B before leaving, the damage may be severe or irreversible. However, A also faces significant risk. If B discovers or anticipates the plot, A may suffer exposure, retaliation, or complete failure. Moreover, even if A succeeds in harming B, X may ultimately abandon or betray A, especially if X later suspects that A could turn against them in the same way.

This technique is widely employed across many domains, including business, politics, workplaces, families, and personal relationships.

6) <u>X Exploiting a Minor Shortcoming in A to Entrap Them and Present Evidence to B</u>

This may be the most effective technique for X to openly remove A from B or divide them while gaining B's support in the process. X's objective is to create conditions under which A inadvertently harms themselves—through greed, impulse, ignorance, or momentary loss of judgment.

The only reliable way for A to counter this scheme is through disciplined self-restraint. This means avoiding actions—whether major or minor—that are wrong, appear improper, or could be maliciously manipulated as evidence against them. It also requires carefully observing one's own desires, emotions, and ambitions; anticipating possible traps; assessing associated risks; and choosing responses that minimize vulnerability in all circumstances.

In essence, A must consistently maintain a protective moral and behavioral boundary, much like a turtle withdrawing into its shell, a soldier wearing protective armor, or a monk observing precepts. This internal discipline serves not as limitation, but as protection against exploitation.

Seduction, bribery, and deliberate provocation are among the most common forms of this divisive technique.

7) X Ruling Through Benefits, Encouraging Competition Between A and B Rather Than Unity Against X

This approach is commonly used in the leadership of organizations, groups, or nations and can be regarded as the most benign form of divide and rule—one that may benefit all parties while harming none. Because no leader would want subordinates or constituents to unite in ways that might expose inevitable weaknesses, errors, or shortcomings (as no individual, organization, or government is flawless), leaders often rely on incentives—such as employment, income, status, recognition, privileges, or opportunities—to redirect potentially oppositional collective energy into constructive individual striving.

By doing so, negative or confrontational impulses are transformed into positive, self-motivated efforts aimed at personal advancement. In such an environment, most people naturally prefer to invest their time and energy in improving their own circumstances rather than engaging in risky collective actions that could threaten authority or stability. Historically, this model has often proven beneficial at the societal level: human effort is efficiently channeled into productive, value-creating work rather than dissipated through destructive conflict or futile power struggles. When applied responsibly, it can accelerate national development while maintaining long-term political and social stability.

Examples include:

- In North America, individualism has been promoted alongside patriotism. This combination has contributed significantly to economic growth and political stability for most of the region's modern history, with notable exceptions arising only during periods of profound moral or structural conflict.

- In China, the reform-era principle that lawful personal prosperity aligns with patriotism helped redirect social energy toward economic development, contributing to decades of growth and relative stability.

CONCLUSION

The techniques described above are only typical examples. In reality, divisive tactics can be far more sophisticated and ambiguous, often combining multiple strategies and entrapments that make them unpredictable and extremely difficult to counter. Even when such schemes are recognized, they are usually impossible to prove and therefore tend to be dismissed as mere conspiracy theories. For this reason, even when A and B are presently in harmony, they must remain vigilant, discreet, and mutually protective, taking care not to create opportunities or favorable conditions for third parties (X) to undermine or fracture their solidarity.

If a conflict suddenly emerges after many years of peaceful cooperation, both A and B should carefully consider the possibility of a latent divide-and-rule strategy at work and attempt to identify who X might be. At the same time, they should not exclude the possibility of a genuine, non-manipulated conflict, which would call for appropriate mediation and

resolution. Prudence lies in examining all potential risks while keeping an open and balanced perspective.

In essence, the ancient Vietnamese proverb *"**Unify and live; divide and perish**,"* distilled from four thousand years of history, conveys a profound lesson: any division between A and B will sooner or later create an opportunity for third parties to exploit. No matter how sharp the contradictions between A and B may be, the harm arising from those contradictions is still likely to be far less destructive than outright division or rivalry. The central message, therefore, is to learn the art of coexisting and cooperating amid conflict, without allowing outsiders to exploit differences to divide and conquer.

The most effective tools for detecting divisive plots are intuition combined with information gathered from multiple sources. The greatest obstacles, by contrast, are unchecked emotions—such as love, hatred, anger, joy, sorrow, and greed—and entrenched prejudices, including rigid viewpoints, factional thinking, and narrow or localized perspectives. Nowhere is this more evident than in politics. History repeatedly shows that when its lessons are ignored, they are relived. From history's perspective, the greatest achievement of a government or leadership is the successful defense of a nation, while its gravest failure is the loss of sovereignty.