Zen Meditation

A MODERN PERSPECTIVE

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My gratitude to the Buddha,
Zen Master Thích Nhất Hạnh,
other Zen masters,
scientists of the world,
and all those
who have by circumstance
provided guidance and helped develop my heart and mind
throughout my long years of learning
and meditation practice.

Wishing this book
would likewise benefit
those who are lost,
suffering,
or seeking themselves
as I once was …

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Originally published (in Vietnamese): October 16, 2019
English Translation: August 03, 2023
Revision: December 12, 2025

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1. The origin of Zen meditation

The origin of Zen meditation can be traced back to the Brahmin religious practice in India long before the Buddha's time. With its characteristic lack of form, it has always been difficult to grasp and has been misunderstood by practically all beginners in the field. It even took the Buddha almost six years of lost and hopeless practice before eventual enlightenment, when he discovered an effective way to observe and transform psychological suffering and obstacles and free himself internally. To help future generations avoid the mistakes he made, he dedicated the remaining 49 years of his life to successfully building a Zen teaching network that has been fruitfully operating up to this day. His delicate and invaluable knowledge was first handed down to the Venerable Mahākāśyapa and then to the Venerable Ananda and has since been passed down to countless monks and Zen practitioners throughout the world. For convenience, the term "Zen meditation" will be hereafter referred to as simply "Zen."

Based on scientific knowledge and many Zen practitioners' successful experiences, this book will eliminate all religious, mysterious, or unscientific aspects or beliefs embroidered or misinterpreted by generations of unsuccessful followers so far and present this ancient yet very profound and transcendental field from a realistic and modern perspective.

2. Two aspects of Zen

Zen comprises two distinct aspects that are complementary to, and essential for, each other:

1) Real-time observation of the body and mind (self-awareness)
2) A genuine and thorough view of oneself, others, and life

While a thorough view unties all underlying psychological knots, conflicts, or hindrances and frees the mind, self-awareness allows effective real-time self-control and helps one deal with mechanical/obsessive behaviors, subconscious attachments, or instincts that tend to pull one back to the old unwanted thinking patterns. A Zen practitioner may attain one aspect before the other, but until both are mastered, their view or understanding would still be incomplete and unstable, although achieving one should make it easier and faster to achieve the other. For example, those who have grasped the technique of observing the body and mind but do not have a genuine view of things (i.e., they are still bound by one or more aspects of ignorance or illusion) will sooner or later be trapped in new psychological conflicts or obstacles, which would all need to be reflected on and resolved before full enlightenment is possible. In contrast, those who have reached thought thoroughness but not real-time self-awareness may now and then be taken over by previous extreme/harmful habits or views and be under their negative influence. These fleeting moments of loss of control, if long enough, may potentially cause unwanted or irreversible impacts, although they may also help us discover and accelerate the perfection of effective body and mind observation skills, which can eventually help us maintain clarity in a more continuous, discreet, and stable way in daily life.

3. The ultimate happiness

Our bodies are built based on the formulae pre-stored in our parents' DNAs. These formulae determine the basis of our faces, statures, health conditions, traits, and aptitudes from birth to death. On this basis, our own circumstances, willpower, and experiences will, over time, contribute their part to the mutation of both body and mind to best adapt for survival and optimize life conditions for the best possible comfort and happiness. Under the multifaceted stressors of life, the human species has far surpassed all others in the realm of rationale and is undeniably dominating the earth as a result. However, it is also this very rapid, but unbalanced, development of our rational mind that has inadvertently caused serious problems, impinging our original goals of survival and happiness. Despite our clear advances in survival skills and enjoying relative success in our search for material happiness, most of us still continue to wander about life and are directionless even for attaining very simple and basic psychological needs, such as peace, joy, freedom, and kindness. So much effort and so many rules and laws imposed from outside aim to warrant the basic human rights to freedom and happiness. Yet, the amount of knowledge accumulated thus far still does not seem to bring about true peace, happiness, and freedom in most of us. We are living not very much differently from biological machines. Despite being equipped with state-of-the-art and sophisticated abilities, knowledge, data, or "software" and becoming increasingly capable and versatile, we are still mostly slaves to, and not necessarily masters of, our own minds. On the other hand, because knowledge is often accumulated discretely, without being duly processed and properly integrated into our judgment mechanism, conflicts arise and become the source of most human pain and psychological stalemates. Resolving all conflicts to attain well-rounded thoroughness and, to some degree, mastering the amount of knowledge so far free to control our body and mind constitute a source of happiness that Zen can bring to anyone, regardless of their wealth, education level, abilities, personality, and health (There are certainly exceptions, and perhaps people with severe mental health problems or brain disabilities can be excluded). This is the ultimate kind of happiness (called self-liberation in Buddhism) capable of transcending all others (which are always conditional) and resolving all common human psychological pain.

4. Knowing oneself

Most of us are already skilled at observing the outer world (what happens or exists outside our bodies and minds). From birth to adulthood, we are primarily trained by our families, schools, and society to observe the surrounding world through the five senses (e.g., accumulating knowledge, socializing, getting an education, enjoying music, indulging in art, acquiring different tastes, and experiencing love) but rarely (or even never) our inner worlds (bodies and minds). Due to this, we normally know ourselves only through memories or external/social mirrors but not through direct and real-time self-observation. This is also why we mostly tend to pursue and become attached to the outer world (such as the material world, social status, fame, and controversies) and associate them completely with our life goals (although deep down, we may know they are impermanent and superficial) instead of exploring our own internal wealth of sustainable happiness and precious wisdom. This imbalance in awareness between the outer and inner worlds has brought about numerous avoidable negative psychological effects, collectively called pain, to humanity.

To address the above imbalance, Zen offers a method of continuous, concurrent, and inclusive observation, whereby our breath acts as a link between the inner and outer worlds. In other words, the observing and observed activities of the mind, the outer world, our breaths, and our bodies are all concurrent, continuous, and integrated events that are not separate from one another or mutually exclusive (the observer and the observed are one). Once this observation technique is grasped we should be able to sustain the practice in most of our daily activities, and even if we temporarily drift away into oblivion, delusion, or anger, we can easily regain balance and self-awareness within just seconds, thereby minimizing the potentially harmful impacts. This body and mind observation technique will be further elaborated in later chapters.

5. Zen and energy management

Apart from automatic activities, such as controlling the internal organs, coordinating hormones, and other biological functions, our brain undertakes two other main activities throughout the day except during sleep: cognitive tasks and associative tasks. While the brain can carry out many associative tasks simultaneously (such as talking while walking or playing the piano with both hands), a cognitive task can only take place in a clear and effective way when all associative tasks stop. For example, if we look at an object while thinking of something else, our eyes may fix on the object, but we may not see it at all. This is also true of other cognitive senses, such as hearing, smelling, tasting, touching and awareness.

When practicing Zen in daily life (i.e., simultaneously observing our breath, body, mind, and the outer world), we are at the same time minimizing useless thoughts and feelings that pop up throughout the day, saving a significant portion of energy that would have otherwise been wasted. This saved portion of energy can be channeled by the body to focus on other useful functions, such as immunity, body development, learning, creativity, and work, which can improve our life, health, and longevity. Zen also helps improve (easily double) productivity thanks to improved focus, clarity of mind, and saving of energy.

6. ATP, ADP, and depression

Our bodies' cells run on adenosine triphosphate (ATP) as fuel. When we wake up every morning, our ATP reserve levels depend on the activities undertaken the previous night and day or even further. Once exhausted, ATP becomes residual adenosine diphosphate (ADP), waiting to be recharged back to ATP for further use. Because ATP can only be reproduced when we sleep or rest, our bodies activate its depression mechanism at the end of the day (or when our ATP reserves are nearly exhausted), causing us to want to stop all activities and withdraw to bed and sleep. If we follow a healthy and moderate diet and lifestyle, a well slept night (of typically eight hours) should fully recharge us, turn off the depression mechanism and get us out of bed the next morning ready to face a new day.

Depression can, therefore, be seen as a positive mechanism for protecting and maintaining life and not necessarily a negative state of health, unless it becomes chronic due to prolonged abuse (exhaustion) of the ATP reserves, making the daily turning off of the depression mechanism impossible. Without depression, we gradually deplete our ATP reserves and die.

One of the causes of chronic depression (which often accompanies sleep disorders) is the constant immersion in thoughts, negative emotions (such as melancholy or hatred), or psychological hindrances, which can be addressed gradually and eventually resolved for good through Zen practice.

7. Zen and telomerase

In 2009, the Nobel Prize in Medicine was awarded to three scientists: Elizabeth H. Blackburn, Carol W. Greider, and Jack W. Szostak, who discovered the telomerase enzyme, which facilitates the formation of the telomere sequences at both ends of the DNA to protect it. The more active the telomerase in a cell, the longer the telomere sequences will be, making the DNA more difficult to mutate. Because DNA mutation may give birth to cancer cells, longer telomere sequences also mean reduced risks of cancer, resulting in increased life expectancy.

Stress and prolonged depression are known to reduce the length of the telomere sequence. The stress mentioned here includes not only psychological but also biological and physical stress, such as illness, deprived or unhealthy diet (malnutrition), environmental pollution, overwork, poverty, prolonged hardships, obesity, and addiction. Research by Elizabeth H. Blackburn and other scientists has produced evidence that mindfulness meditation increases the length of telomere sequences because it reduces psychological stress and depression. From the above facts, telomerase can be seen as the biological link between stress, cancer, and longevity.

On the other hand, DNA mutations have also helped all living species (including humans) to adapt and evolve as they are today. What this means is stress, if positive and to a reasonable extent, is not only healthy but also essential for our survival and development. Some examples of positive stress include physical training, learning and facing challenges in a positive way, and pursuing reasonable goals for success. With its energy-saving characteristics and enlightening effect toward a far, integrated, and comprehensive vision, Zen can help us come up with the best and most accurate judgment for each life circumstance to minimize negative stress and protect our well-being or transform conditions into opportunities for taking positive stress and excelling and evolving.

8. Emotion and rationale

The brain's evolution began with the brainstem (containing the pons, medulla, etc.), which is in charge of controlling the different organs of the body. The limbic system (containing the hippocampi, amygdala, etc.), which is responsible for our emotions, was formed later (about 250 million years ago) to underpin the next development of the cerebellum, cerebral cortex, and neo-cortex, which occurred over the past 200 million years, when the rational mind gradually began emerging and has been evolving ever since, from language, thoughts, information processing skills, knowledge, ideologies, civilization, culture, science, to even Zen.

The above evolutionary process of the brain shows that emotions (including greed, anger, fear, and so on) emerged 50 million years earlier and had been solely in charge of the survival of many species until rationality appeared. The rational mind has since been developing and playing an increasingly important role in complementing emotions. To fulfill this complementary role, rationality has had to come up with different (or sometimes even opposite) views that need to be wiser, more effective, and safer than emotions in protecting and enhancing life. For example, when in danger, the only measures the emotional mind has are either to run away out of fear or get angry and focus energy on threatening or attacking the opponent (i.e. fight or flight). Meanwhile, the rational mind can come up with many more options, such as negotiation, diplomacy, politics, and so on.

On the other hand, despite the rational mind becoming more sophisticated than emotional one, it still cannot completely escape the latter's control simply because emotions were there before and were the foundation for rationality to form and develop. Examining all past products of human rationality, from the wonderful achievements in science, medicine, culture, and social development to the catastrophic consequences of war, violence, legal battles, and deception, we can observe that their motives all stem from emotions (e.g., kindness, love, passion, ambition, malice, greed, and anger). Thus, after 250 million years of evolution, emotions still remain the ultimate and most profound motive of all rational activities and, thus, are still actually controlling the rational mind despite possibly appearing to us to be the other way around. This suggests that the motives underneath our acts are more important, reflect the intended goals, and need more attention than the acts themselves.

With the ability to observe and stay on top of both rationality and emotion, Zen, which is a particularly new aspect of rationality self-trained and integrated into our set of life skills (as will be elaborated in later chapters), can help us most accurately assess the possible real motives beneath our own and others' deeds and, thus, come up with safe and optimal responding strategies or behaviors in all situations. Also, thanks to its thorough rationality with a comprehensive view of things, Zen can help us gradually transform negative emotional activities so that the motives behind all actions become increasingly positive, bringing more benefits than harm to ourselves and others.

9. Joy and pain

Joy and pain, which play the roles of "carrot" and "stick," respectively, are integral to our emotional lives. Our bodies reward us with joy (carrot) when we do things deemed beneficial to life and punish us with pain (stick) otherwise. However, because we cannot accurately see things as they are with emotions, the rational mind needs to exert a reasonable amount of influence on the emotions' judgments, so that joy and pain can play their aforementioned intended roles. For example, addicts feel joy when fed with what they crave (which can be drugs, narcotics, alcohol, or gambling) and pain when short of them; however, this is obviously an erroneous judgment of emotions. In this case, Zen can help them observe their addictive patterns and gradually discover ways or even tricks to tame and eventually overcome the problems. Consequently, they would feel happy from having regained control over their brains and escaped the addiction. Children also behave similarly: They cry when they do not get what they want due to immaturity. Even healthy and successful adults can falter both psychologically and physically and even ruin their careers or lives just by making erroneous judgments on happiness (such as blindly pursuing a one-way or artificial relationship).

As already mentioned in Chapter 3, Zen offers a state of happiness that is sustainable and transcendental (self-liberating) by helping people attain a thorough view of life, thus enabling them to rise above and, to some extent, supervise the root cause of all psychological joy/pain (i.e., supervise their own "carrot/stick" mechanism). Unlike the conditional types of joy, which always accompany pain through dependence on external stimuli, such as status, wealth, and power, this ultimate happiness is rather gentle, simple, unconditional, and non-discriminative. Anyone, be it rich or poor, elite or lay, regardless of their knowledge, education level, capacity, circumstance, or health, has the potential to attain it for themselves for the rest of their lives. This type of happiness can resolve and dissipate fear, anxiety, and all other human psychological pain, thereby putting us in a stable state of peace, satisfaction, solidity, and composure—traits characteristic of Zen.

10. Knowledge and insight

With the exception of congenital or inherited aptitude or wisdom, most of our knowledge or skills are learned through experience (from outside the mind) and are often stored in the brain in a discrete way, not properly processed or integrated into the existing blocks of understanding. When not used or cherished, this information gradually sinks deeper into the subconscious or fades away and will have practically no effect on our lives. Conversely, if adequately attended to, such information is gradually strengthened and integrated into the active body of knowledge. Insight, on the contrary, is illuminated from within the brain and not learned from outside (self-enlightened wisdom), although it is still eventually stored and integrated into the active knowledge block as any other piece of information.

Our brains comprise billions of neurons, each normally having tens of thousands of dendrites that interconnect other neurons to form complex intertwined memory networks for storing and processing data. When a piece of information is stored in our brains, whether the process of connecting it with the remaining information happens or not, quickly or slowly, locally or comprehensively, superficially or profoundly, all depends on how important it is to us (such as the extent to which we attend, think about, or cherish it), how we process it (such as receiving it with an open or prejudiced/rigid mind), how contradicting it is to our pre-existing beliefs (such as an act that conflicts with an accepted notion about conscience, or an event contradicting our existing understanding or expectation), the brain's stress level (a mind too busy with work or preoccupied with sadness, anxiety, or fear would hardly have time or energy left to properly process or integrate new information), how complex the problem is, and our experience and knowledge. When the brain detects a conflict within itself, depending on the above conditions, the related neurons grow dendrites to probe and connect to one another to either try and solve the conflict, speculate possibilities, or arrive at, usually, unique and potentially breakthrough insights. (Many past scientific discoveries have been a result of this wonderful ability of our brains, whereby after some period of tenacious research, pondering, and wondering, people have arrived at a eureka moment.) In general, being organic reactions, knowledge integration (which is interconnections among related neurons) needs time, brain space (leisure), and energy to take place properly. Normally, upon receiving new information from the outside, the brain may take only seconds, or even years to integrate and fully understand it, depending on many subjective and/or objective conditions. As an example, two people reading the same book may understand and interpret it differently or may even have opposite views. Also, we sometimes try to understand why certain things happen to us, but it may take some time for us to connect the event with a known but unsuspicious piece of information, causing us to suddenly understand the picture more broadly and profoundly.

Just as the natural function of the muscles is to move and that of the eyes to see, the brain's functions are to recognize, remember, think, and, most importantly, understand and resolve pain or problems. Expecting the brain to not think would be no different from wishing the eyes to not look or the muscles to not move, which is not only unnatural and unhealthy but also practically impossible. On the other hand, the brain can fulfill its above functions only if it has what it needs to do the job, such as nutrition, adequate sleep/rest, time, reasonable space (not overstressed), and being free from dogmas, prejudice, and fixed notions (of which the Buddha deprived himself during his first six years of fruitless meditation practice). Zen meditation, coupled with healthy eating, provides the above conditions for the brain to do its job without any need for further effort or intervention from us. There is a Zen school in Korea that advocates living with a "don't-know mind" (an open mind), which helps us to gradually acquire a genuine view and understanding of things as they are or as they happen, free from fragmented knowledge, prejudice, expectations, or emotions. Even when we already have a thorough view of things, an open mind continues to be useful and necessary for learning, processing, and integrating new knowledge.

Contradictions among fragmented pieces of knowledge in the brain create different types of pain to varying levels, such as embarrassment, confusion, indecisiveness, dissatisfaction, disappointment, frustration, insecurity, discomfort, torment, shame, remorse, anxiety, fear, boredom, depression, sadness, despair, or

even suicidal thoughts, which can, in turn, urge the brain to find solutions. When seeking answers for issues during research (i.e., trying to resolve certain contradicting pieces of knowledge), scientists have constantly carried with them some degree of puzzlement, dissatisfaction, and urge to find an explanation. By cherishing such healthy "miseries," continuing the search, and experimenting with an open mind, they create the most favorable conditions for the brain to explore and seek answers, similar to how athletes create the most favorable conditions for their muscles to develop through persistent and methodological training. Likewise, when a person suffers, if they persistently observe, acknowledge, and embrace pain (instead of deceptively denying and finding an escape route through pleasure, alcohol, and drugs or by absorbing more dangerous types of pain, such as vengeance, malice, despair), the brain gets the necessary motive to try to understand and resolve such pain. Counseling or psychotherapy can only bring the same results when successfully integrated into the related knowledge block, meaning the counseled information alongside the pain must be adequately reflected upon and embraced.

Pain also often arises from prejudice, fixed notions, or a misleading/distorted/incomplete view or understanding of the truth. As the complete truth usually has apparent and hidden sides, clear and ambiguous aspects, known and unknown details, beneficial and harmful impacts, past and present facts, events and contexts, good and evil, and connections to oneself and others, it is usually difficult to fully and accurately discuss, convey, or comprehend it. To resolve this type of pain, the brain can probe or explore within itself to discover or speculate the missing key pieces of information to acquire the overall true picture. The reason why this brain's ability exists is that we need to understand what goes on around us (a natural need of all species, perhaps originally intended merely for survival), given that no one can witness the full truth and not all facts leave adequate or clear evidence. The foundation of wisdom is, therefore, the ability to see, deduce, or visualize the full picture of the truth about oneself, others, and the world from known discrete/fragmented pieces of evidence or true information. Once insight arises with a reasonable sketch of the truth, all we need to do is to return and find more specific evidence or data to prove or disprove it. All of Einstein's theories in physics were products of pure insight (backed with mathematical work), and it was not until years later that science could prove some experimentally and disprove the rest.

In his time, the Buddha spent around six years diligently practicing asceticism without success. Pursuing only ideals, which had to do with only a positive part of himself, he completely neglected the rest. Only on the verge of death, out of exhaustion (from hunger), did he become disillusioned, let go of all ideals or preconceived notions about his spiritual path and goal (open mind), start to see his forgotten negative side, which came back fully alive for the first time after years of suppression, discrimination, or denial. Within just seven weeks, he found his own unique way to constantly stay on top of his mind (including his negative side) and suddenly realized his long-sought spiritual goal. Following this victory, he spent another seven weeks carefully going through and verifying his self-discovery before deciding to pass it on to the world. Thus, after six years of fruitless practice, in just seven weeks, he attained both aspects of Zen: 1) the realization that his unwanted side was an inseparable part of himself shattered his ultimate delusion and gave him an unprecedented and thorough view of himself and the world. Everyone carries in them all positive and negative seeds of humanity, and the vital thing is to not eliminate the negative ones, an impossible thing to do, but supervise and transform them while nurturing and developing the positive side; and 2) the discovery of a real-time method of observing the body and mind that can immediately detect and effectively neutralize all "evil" thoughts that pop up.

Each of us has a unique set of attachments or delusions, so learning from the Buddha's enlightenment experience (which only gives us knowledge) does not necessarily help to fully enlighten ourselves. Therefore, we must each walk the Buddha's enlightenment path by practicing the method he passed down (as can be found in later chapters) to identify our own blind spots (which are usually blanketed by our own prejudices or habitual beliefs/assumptions and thus unapparent to us) and uncover them. The trick to keeping existing knowledge from becoming prejudiced is to always be in doubt of its completeness, i.e., to always question if, apart from what we already know and can verify, there are details we do not know that can change our current view of things. This famous Buddhist saying, "Little doubt, little enlightenment; great doubt, great enlightenment" precisely conveys this message. It is also this very doubt that has helped science make progress to the extent it has today.

11. Benefits and harm

From time immemorial, people have considered the pros and cons when doing certain things, implying that nothing in the world brings only benefits without any potential harm and vice versa. This truth alone is sufficient for us to deduce the following safe and positive rules of thumb in life:

1) Whatever can bring more benefits than harm to us and others should always be worth doing, not the other way around.

2) Those who have brought more benefits than harm to others throughout their lives should be considered good.

3) Due to the relative nature of benefits and harms and of life in general, one should approach all matters with a relative and moderate mindset (the middle way) and best avoid extreme or one-sided views, which are sources of risks down the road themselves.

4) Large-scale benefits also bring proportionately large-scale harms that can be more difficult to resolve.

5) To maximize benefits while minimizing harm, a diversified ecosystem needs to be observed and nurtured. This is not only real and effective as a law of nature but also applicable in many other fields, from broad ones such as economics, politics, health, education, culture, and religion to personal areas such as diet, daily activities, tastes, concepts, and ideologies. (For example, as discussed in Appendix A, eating a variety of foods and changing dishes every day is healthier than repeatedly consuming a favorite dish/meal for consecutive days or for long, regardless of how nutritious or expensive it is). The reason is that in a diversified environment, the harms created by one entity have more conditions and chances to serve as benefits to another and can, as a result, be readily eliminated through symbiotic activities, thus keeping the overall environment sustainably balanced and healthy without the need for much corrective intervention.

6) The above rules are also, certainly, relative and do not necessarily condemn extreme measures to deal with harms created by other extreme activities as long as such solutions are temporary and cannot be replaced by more moderate ones. The deliberation of pros and cons must be an ongoing process of assessment and adjustment as long as we exist as a species. The reason for this is that humanity's journey of exploring benefits to maintain and improve life is always one of trial and error; thus, predicting and dealing with resulting harms cannot be of a different nature.

12. The dark realm and mysteries of life

Dark matter and dark energy, with their following characteristics, have been scientifically proven to exist in the universe although methods to observe them have still not been found:

1) Dark matter pulls
2) Dark energy pushes
3) Both pass through matter (including our bodies)

These two phenomena play key roles in the operation of the universe and life on earth. Without them, the universe would not be in its existing order, and life would immediately disintegrate. Since dark matter and dark energy are present right in the very tangible space we live in (the tangible realm) and because we do not know much about their invisible space, for the purpose of this book, let us call it the dark realm.

The dark realm and the tangible realm are inseparable and cannot exist independently. As a result, they must have a reciprocal and direct effect on each other to the extent that, without one, there cannot be the other. On this basis, we can deduce that all developments in the tangible realm (including human life and activities on earth and possibly even our own thoughts and emotions) affect the dark realm and, potentially, have consequences or cause disturbances there. In contrast, disturbances or changes in the dark realm should also affect our tangible realm and, possibly, cause the so-called "supernatural" phenomenon. Speculating further, in the hypothetical case of the existence of life in the dark realm (made of dark matter and dark energy), the interaction between the two realms would be even more complex. With the inability to observe the dark realm, we cannot logically observe the mentioned interactions between the two realms but can only experience their phenomena or consequences (if any) in the tangible realm. As it is impossible to understand or prove with reason, humanity currently has only three tendencies to explain the so-called supernatural or hard-to-believe phenomena in life:

1) Theory of randomness
2) Conspiracy theories
2) Mythical concepts, such as god, heaven, hell, ghosts, soul, prophecies, astrology, divination, horoscope, feng shui, curses, and witchcraft

The ancient Japanese, with their Shinto religion, worshipped the sun as a god. At today's advancement of science, the sun is fully understood inside out and is no longer a supernatural phenomenon. Likewise, the dark realm will hopefully be well understood one day, and the above mythical concepts will no longer be necessary for explaining phenomena or fields that are still currently considered mystical.

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13. The Buddha's door to Zen

In his daily activities (except sleep), the Buddha meditated everywhere and at all times, such as while walking, standing, lying down, sitting, eating, speaking, working, and resting. His meditation method can be encapsulated through the following four main exercises, aimed at guiding anyone with sufficient patience and determination to a wonderful and sustainable meditative state:

1) SITTING MEDITATION: This is the most basic Zen exercise for beginners. The sitting posture makes it harder for us to fall asleep and consumes less energy, thus allows longer practice sessions. The closing of eyes (to reduce external distractions) further helps us focus on the body and mind. As the Buddha lived a homeless life, sitting with crossed legs in the full- or half-lotus posture was logically the simplest and most convenient way at the time, for it could be done anywhere—on the ground or on any platform. However, this posture is known to obstruct blood circulation and causes not only leg numbness in beginners and experienced practitioners alike but also potential injuries. It can also impact the spine and the leg joints/muscles in the long run. Therefore, to avoid these unnecessary harms and give our body maximum comfort and stability with minimum stress, the healthiest, most efficient, and the least energy-consuming way is to simply sit on a stool whose height is slightly above our knee level so that our thighs can be opened forward widely in a slightly downward V shape, creating a steady tripod between the stool and our feet. (The thighs' slight downward slope will naturally straighten the spine without any effort from our end). Our two hands can rest loosely, with palms facing downward on our knees or facing upward directly below the navel. Our eyes can be closed or open, as needed, and all the muscles should be relaxed (no tension, contraction, or stiffness). (If one is feeling sleepy, they should go to bed and resume meditation only when fully awake.) In this sitting position, we would be ready to practice Zen according to the following guidelines:

   - Breathe gently, slowly, evenly, comfortably, and spontaneously, and continuously monitor this activity (i.e., be aware that you are breathing, that air is passing through the nose and into and out of the lungs, and that the chest and abdomen are expanding and contracting). Bear in mind that you are not practicing breathing here but are, constant awareness of your breath. This is the key and unique feature of the Buddha's meditation method, which uses the breath as an anchor to stabilize the mind and prevent it from being carried away by thoughts, attachments, or surrounding activities. It can be safely said that whenever we do not know that we are breathing, we are not really aware of our existence or living in the present moment. The constant monitoring of our breath also benefits us physically in terms of keeping it regular (undisturbed by emotions or thoughts), thanks to which, our bodies gain adequate ventilation. Consequently, our hormonal and visceral activities are balanced at their best at all times, leading to a healthy and stable condition for our bodies and minds to operate.

   - Always remember to keep a very light smile as both a self-reminder and a sign of your being internally well, relaxed, comfortable, and mindful of both the inside and outside worlds rather than being consumed, carried away, or absorbed in thoughts, emotions, or even breathing itself (which are all states of the mind to be avoided). The meditation exercise should unfold itself at ease in an enjoyable or even playful way and not require any strenuous effort or call for self-struggle from your end. Even when faced with an uncomfortable, pressing, or emotionally disturbing situation, this smile will have a soothing effect and give us a more relieved and composed view of the issue at stake.

   - Alongside the above two activities, we would also need to practice simultaneous awareness of not only what is heard from the surrounding (such as ambient noises, people's voices, the sounds of cars on the street, the rustling sound of leaves, or even complete silence) but also our ears

listening to them internally; of not only what is seen around us (such as trees, the blue sky, white clouds, the window, people and objects in the room, our own limbs…) but also our eyes looking at them (if opened) and our mind recognizing them; of our skin feeling things (such as a breeze, heat, cold, itching, pleasantness…). In short, we are practicing awareness of what is going on both inside and outside of us and not just the outer world. The simultaneous awareness of the above objects will help keep the mind always fluent, sober, and unabsorbed in any particular one (absorption is a state of mind to be avoided).

- As sitting meditation progresses, it is normal to become occasionally carried away by thoughts or feelings and lose awareness of your breath. If this happens, practice recognizing the drift, and it will immediately stop, taking you right back to the meditation exercise.

- If the mind is weighed down by anguish, anxiety, confusion, or even physical pain alongside the above cognitive activities, we would also need to practice recognizing, embracing, soothing, and passively observing the problem (like a mother holding her suffering child while trying to find out the cause, without yet knowing what to do to help) to bring forth the necessary conditions and time for the brain to understand and resolve the problem in the most effective, comprehensive, sustainable, and beneficial way possible instead of running away from, denying, suppressing, or replacing the problem with greater or more harmful alternatives, such as revenge and hurting or killing someone. By regularly embracing a problem in a peaceful and healthy way, the ideal conditions are created for insights to develop and emerge, thanks to the brain's wonderful ability to understand and resolve pains or problems. If the pain being embraced is a critical one, resolving it may lead to an ultimate insight that can undo all remaining material entanglements or attachments and completely liberate the mind, giving one a thorough view of life and a healthy feeling of lightness, peace, tranquility, freedom, and never-before-experienced joy. This ultimate and wonderful state of mind would not be a transient experience but stay with us for life because, from that moment onward, we would know how to properly think and process new information to avoid creating any further conflicts with the existing information or knowledge we possess. Having no more internal conflicts means that we have understood the general root cause for all matters/issues in life and within ourselves, whether we intend to change or improve them or not. This knowledge will allow us to foresee eventualities in any situation and always be mentally and strategically ready for the best, most effective, and least harmful response for all relevant parties. In fact, it is not only through Buddhism that one gains this thorough view of life. People with sufficient experience and understanding of life are expected to have some level of mind thoroughness and pain-resolving capabilities. What is unique about Buddhism, however, is its effective meditation technique, which can help us attain not only well-rounded self-realization but also self-awareness with the least effort, cost, time, risk, and harm.

- In the absence of any serious concern or pain, diligent Zen practice will allow seeds sown in the subconscious, including skills or knowledge that has been neglected or forgotten for a long time, to gradually emerge and exert their influence or control on the mind. This then becomes our opportunity to realize ourselves in a more holistic way, which is essential to attaining a thorough view of life (as in the case of the Buddha after giving up the ascetic way of living that was pursued for six years in vain). On the other hand, when we have abundant free time, with not much to do or think about (such as retirement, incarceration, or hospitalization), the Zen practice can prevent us from getting bored, for we would have the necessary time and internal space to observe and explore ourselves, the most vital and interesting element that we have neglected for so long in the pursuit of mostly less essential external objects. Self-awareness opens up new horizons and potentially offers new goals, inspirations, and careers in which we will have more freedom, control, and choices in pursuing and exploring our creativity (even under minimum external living standards) while better fulfilling our need for inner peace and happiness.

- In the case of an agitated or dull mind caused not by pain, anxiety, or absorption in emotions or thoughts but by physical problems (such as food poisoning, malnutrition, imbalance in brain

chemicals, sea/motion sickness, alcohol/drug intoxication, and congenital learning disabilities such as autism), simply focus on breathing coupled with closed eyes or fixing the gaze on a stationary point, which should gradually help us calm down the agitation and stabilize the mind while seeking a more effective or permanent therapy. If such agitation occurs in public, it is important to stop the current activity, recognize the situation, and take preventive action to treat or deal with the problem instead of suppressing it, trying to act normally, and continuing with what we were doing. Those with learning disabilities should find suitable means of living or work environments that accommodate such symptoms. Nevertheless, Zen practice can help significantly reduce the severity and frequency of these symptoms, with the prospect of practically normalizing them in time if adequately accommodated.

- Practicing Zen is like acquiring a new skill for our minds and involves simultaneously observing our bodies, minds, and surroundings. In other words, we are developing a master in ourselves that will monitor, in real-time, as many activities as necessary and practically possible in our bodies and minds, which have so far been automatically or freely operating with little or no supervision. From being slaves to our emotions and knowledge, we can look to rise up, transcend, and regain control over them, thereby freeing ourselves from their harsh mechanical grip. Therefore, the ultimate goal of Zen is not to suppress or extinguish emotions or thoughts but to allow them to unfold in a moderate, balanced, healthy, and useful way under constant inclusive supervision. What this means is that the mind should still be free to express its thoughts or emotions and make suggestions or requests, but the decision would still be the master's to make, who would now know how to manage its own body and mind.

- As discussed in Chapter 5, focusing one's observation on any object has the effect of stopping or limiting the current flow of thoughts and/or emotions. Therefore, to observe both the inner and outer worlds (body, mind, and external objects) while still allowing some thoughts and/or feelings to occur in moderation, we need to explore, during meditation, a new observational method, in which all objects being observed (including on-going thoughts and feelings) are integral parts of a single event, the present moment. To do this, the Zen practitioner must graciously accept and embrace every object they are observing and combine them into one reality, as a whole (without discrimination, favor, or special attention to any particular object). This should help the observer obtain an overall picture of what is happening inside and out, right here and now. This also means that all observed objects become a bit blurred and not as clear as before, and the observation will also be a bit slower, but, in return, we will always see the overall picture of the present and can always zero in on any particular details in it for a moment if required and still allow the bigger picture available at hand to return any time. This observation technique is quite similar to the way we watch a movie, whereby the screen represents the big picture of the present, and all details and developments on it represent the different monitored objects or activities in our bodies, minds, and surroundings. Looking at the screen, depending on our own needs or preferences, we can look at the overall picture or focus on smaller details in it, but the screen would always still be there to constantly offer us the full view. As another example, consider the way a teacher looks at or monitors his students in a classroom. In this analogy the whole classroom represents the overall picture of the present, and each student in it represents a different object of observation in our bodies, minds, and surroundings. Looking at the classroom, depending on his own judgment at each moment, the teacher may focus on a particular student showing abnormal signs or just keep an eye on the whole class without clearly identifying anyone (the teacher cannot possibly both look at the whole class and clearly identify each student at the same time). The commonly heard Buddhist term that indicates this all-in-one view is "one mind," which is a difficult-to-grasp concept in Zen, yet can also be very simple to realize in just a blink of an eye and become as easy as riding a bicycle, never to be lost thereafter. Upon realizing this observation technique, we will have a significantly different view of ourselves and the world, in which our bodies and minds are ever-present and inseparable parts of the world and no longer entities independent from our surroundings that are often forgotten. This observation technique is a hallmark of Zen Buddhism that can immediately tell meditators if they

have reached real-time self-awareness (and its associated never-before-experienced characteristic stability), as the Buddha experienced under the Bodhi tree in India thousands of years ago.

2) WALKING MEDITATION: After a few weeks of getting used to sitting meditation, we can add the next exercise, walking meditation (recommended after a sitting session). The only difference is that, instead of sitting, we walk slowly, step by step (indoors or outdoors) and be additionally aware of every step we take, every time our heels and toes touch the ground, and every movement of the body while every other muscle of the body remains fully loose or relaxed. In this exercise, the objects of our observation are a little more complex, which makes walking meditation slightly more difficult than sitting meditation; however, on the upside, walking keeps us more alert, potentially making observation easier and more spontaneous. The constant observation of our steps also helps us realize the possible mechanical or unconscious ways we usually walk, whereby we can take steps to refine them (in everyday life, we often walk without being aware that we are walking).

3) REAL-LIFE MEDITATION: The ultimate goal of a Zen practitioner is to observe the body and mind in all of their daily activities, including when working, communicating, eating, moving, or pursuing any form of entertainment. This is collectively called real-life meditation. Once we gain familiarity with walking meditation, we can start the most difficult and comprehensive exercise, which is to practice Zen in real life, starting with the simplest tasks requiring the least amount of associative effort, such as floor sweeping, vacuuming, and dishwashing, and gradually extending to increasingly complex tasks, such as eating, talking, socializing, and working. Perhaps the most difficult task is to practice meditation while talking (especially on the phone), for talking not only requires constant real-time thinking but also limits inhalation, which interrupts regular breathing (speech sounds can only be made when air is exhaled from the lungs), making it very easy to lose the continuity of observation and drift away in the words we speak. When practicing Zen in real life, we possess a different attitude and naturally become more mindful, composed, considerate, and relaxed in all our activities simply because every act or word uttered is now monitored and intentional and no longer mechanical, automatic, impulsive, or obsessive as before. This helps us not only to reduce errors or risks of stumbling or making mistakes but to also have a better chance of winning others' hearts and trust, thanks to the fairly obvious high level of mindfulness and self-control. On the other hand, intensively focusing on work, speech, or observing anything makes most people liable to holding their breaths until the task is over, which results in premature exhaustion if prolonged (both mentally and physically) and may gradually lead to absent-mindedness, fatigue, or irresponsibility at work in the long run, mainly because the body is frequently getting a lack of oxygen. Therefore, monitoring our breath and keeping it moderate, both at work and in our daily activities, should significantly improve our overall endurance and productivity. Once we are fully comfortable with real-life meditation, we would no longer need to separately practice sitting and walking meditation because they would then be an integral part of the former, all day long. For jobs demanding a high level of concentration, we can always arbitrarily remove unimportant external details to focus primarily on the work; however, we must at least maintain minimal partial awareness of the breath (and our bodies and manners, too, if essential). Without this minimal partial awareness, we will be completely absorbed in work and lose our last anchor to reality (the breath).

4) LYING MEDITATION: Unlike the above three exercises, the purpose of lying meditation is not to stay aware of the body, mind, or the surroundings but to just stop any ongoing thoughts so that sleep can spontaneously come by itself with ease (overthinking or intense feelings make falling asleep difficult and, if not addressed, may lead to chronic insomnia). For this exercise, you would need to lie down straight on your back (on a firm but smooth surface) in a clean, quiet, and well-ventilated place with low lights and comfortable temperature (turn on a fan if it is too hot or, if it is too cold, use sufficiently warm clothes and blankets or turn on the heat). Avoid using pillows unless you are lying on your sides. Straighten your limbs, relax all the muscles, and practice the following:

   - Breathe gently, slowly, evenly, and comfortably, like in sitting meditation, except inhale a bit more air than needed each time and constantly monitor just your breaths and nothing else (i.e.,

always know that you are breathing, that air is passing through the nose in and out of the lungs, and that the chest and abdomen are expanding and contracting). This breathing technique has three effects that can help you fall asleep:
A) Restrains the ongoing train of thoughts keeping you awake
B) Causes your mind to gradually fall into drowsiness, boredom, or absorption in breathing—states rather close to inducing sleep
C) Gradually causes hyperventilation (oxygen poisoning due to repeatedly inhaling more air than required), forcing the brain to quickly fall asleep to reduce air intake. This effect is responsible for the ease with which one tends to fall asleep on a sunny mid-summer day under the thick shade of a mature tree, where ambient oxygen levels are higher than normal.

- Lying meditation should be practiced (recommended on one's bed) at a fixed time daily (typically fifteen minutes before one's desired bedtime) to train the body to follow a regular and healthy sleeping habit (allowing a minimum of eight hours' sleep/rest).

- Neither a full nor a hungry stomach is recommended just before bed. Do not consume stimulants such as tea, coffee, or ginseng past noon, and do not take sleeping pills or consume alcohol to induce sleep. Drugs (narcotics, marijuana) or alcohol abuse should never be done.

- Sufficiently hard physical work during the day should drain enough energy and prepare the body for a good night's sleep. Refrain from engaging in exciting activities or work demanding high attention after supper.

14. Taking care of the mind

Despite originating from the wild, each of us at this point of our evolution would want to create a fresh, tidy, and safe garden for ourselves, our family, or our society where we live and nurture only the plants or trees we need or like and tend to designs we deem to be the most logical, eye-pleasing, or beneficial. Likewise, our minds are filled with mixed good and bad seeds that thrive under the right conditions, and, if allowed to grow freely, will become as wild as a jungle full of barbaric beasts, insects, and unwanted plants or weeds, covering the precious treasures beneath.

To improve our lives, we need to promote the positive seeds and prevent negativity in our bodies and minds, just like a gardener cultivates, fertilizes, and waters desirable flowers and fruits while preventing weeds and pests from growing. Since the human mind has been evolving faster than any other species (both emotionally and rationally) and since, as mentioned before, all rational activities are emotionally motivated, it is not difficult to imagine that the world reflects how our hearts and minds choose to see it. It is no coincidence that all religions encourage and honor positive emotions promoting peace and joy, such as generosity, compassion, charity, piety, and kindness, and calls for limiting opposite sentiments, such as selfishness, greed, hatred, aggressiveness, malice, and cruelty.

If gardeners need to observe their gardens to take care of them, so do meditators, their own bodies and minds. Non-practitioners can still observe themselves indirectly by seeing reactions and acquiring feedback from family, friends or others or by observing the consequences of the activities they engage in. However, this indirect observation method can, sometimes, enable us to see ourselves a little too late, whereby we would not be able to salvage a scenario that has already taken place. This is a grim tragedy for humanity and has caused countless wars, destruction, and breakdowns that could have been avoided through Zen's real-time and direct observation.

Like gardeners wanting to set up fences or plant beds to grow flowers or fruits in ways that are tidy, pleasing to the eye, and easy to care for and harvest, meditators should also set mind principles or limits to allow only positive, beneficial, and healthy seeds to flourish and minimize the growth of destructive or negative ones that are always ready to sprout under permissive conditions. Since, as previously mentioned, nothing in the world can only have a positive side without a corresponding negative side and vice versa, we should carefully consider all relevant factors (including circumstances, conditions, natures, and contexts) pertaining to as many potentially affected parties as possible before speaking or taking action to maximize benefits and minimize harms for all. Certainly, judgments of this kind are always subjective and may differ from person to person. Regardless, the diversity of assessments/judgments can, ultimately, help mitigate or eliminate harms (at the expense of benefits) and keep the overall environment balanced and healthy in the long run.

15. Transforming unhealthy habits and grudges

The phasing-in of new observational and meditation skills to replace undesirable long-standing mind patterns will require years of Zen practice. Based on successful practitioners' experiences, 1,000 hours of meditation is the average time required to achieve at least one of the two aspects of Zen. This translates to about three years with an hour of practice every day. The estimated 1,000 hours may turn out to be longer or shorter depending on the practitioner's degree of care/concern (pondering on the relevant contradictions or suffering), nature, circumstances, knowledge level, life experience, and even luck. However, it is important to remember to not expect enlightenment, which can give rise to illusions or imaginings of achievement and become an obstacle to seeing things as they are. Like spring naturally comes when winter is over or fruits fall off trees on their own when ripened, the mind becomes free on its own upon understanding and clearing all entanglements, thereby dispelling all inherent conflicts and pain (historically, it has been seen that this occurs in people after the age of 35). Like gardeners, who only have to create the right conditions for plants to grow and then just watch and wait, all that Zen practitioners need to do is create a free internal space (without prejudice or dogma) and a healthy physical environment (eating, drinking, sleeping, and resting adequately) for the brain, incubate existing pains or concerns, and stay aware, both internally and externally. As such, the right conditions would be created for the brain to do its work and potentially give rise to previously unthought-of insights about many things. Again, it is important to not impose any prejudice or fixed notions on the mind, for these have never really resolved pain and, therefore, will not help. To come out of a confusing situation, we need to explore and find a new perspective that is closer to the truth and will need to rely on the mind's wonderful ability to analyze, reason, understand, and judge. The purpose of Zen is to stop emotional and prejudiced interferences, surrender, retreat, and allow the rational mind complete freedom to do its job of observing and exploring the truth directly, wholly, and impartially, without any attachment and without any intellectual prism.

If enlightenment is the ultimate successful milestone of Zen practice, it also marks the beginning of a new phase—that of transforming internal grudges and negative habits. Even with the observation skills and a thorough view achieved through Zen practice, long-standing habits and grudges can still linger in the mind and would only need a distracted moment to emerge, hijack, or take control of us, until discovered and temporarily disabled. This is often all it takes to produce undesirable consequences. What is important is to understand and learn from these moments to be able to sympathize with and forgive ourselves, for we did not intend it. We were vigilant at our best and cannot be perfect all the time (when identified each time and neutralized in this way, the particular grudge or habit will weaken and be gradually tamed over many years). However, it is this very recognition of our inevitably imperfect nature that makes us more tolerant of others' imperfections and helps us develop compassion and adopt a more neutral and moderate view of life (after all, no one in the world is perfect, including the Buddha, so any positive effort is good and should be encouraged). It is thanks to this tenet that the seeds of extremism, punishment, hatred, and cruelty have no room to grow on Zen land.

Once we know how to master the mind, we will have an immense free space inside to observe, identify, reason, resolve, and embrace or accept the outer world. Only this space can give us an inexhaustible source of happiness, allow us to nurture inner strength and tenacity, and help us to maintain a relatively neutral, accurate, balanced, and holistic view of ourselves, others, and all things, thus enabling us to have the best possible life in view of our own individual circumstances and conditions.

Would not Zen, then, be an essential skill or evolutionary step for humanity to sustainably continue its existence and betterment on earth in peace? If so, should it not be included in school curricula, not in the form of a religion but as an essential life skill for the peaceful survival of the human species with others? Just about ten to fifteen minutes of Zen practice in class at the start of every school day should be enough to equip children with a relatively balanced, peaceful, happy, and stable mentality when entering adulthood and

a healthy and effective pain-resolving tool for life. This might also very well be an affordable and sustainable solution to today's worsening social and physical/mental health problems around the world. Zen practice can also be scheduled in hospitals, prisons, or even workplaces as a therapy or exercise that not only relieves illness, negative/extreme thoughts, or stress (replacing harmful vices such as violence, corruption, alcohol, gambling, and other addictions) but also increases physical and mental health, performance, and creativity.

16. Love

The following signs of true and healthy love will allow us to evaluate our own and our partners' feelings to make the best and most appropriate decisions for relationships:

1) Love begins with genuine feelings, not with logic or reasoning, although the latter do subsequently play a crucial role in verifying the other person's love and in protecting, maintaining, and developing a long-term relationship. These feelings are perhaps genetic signals indicating the detection of complementary features in the other person (which would produce healthier and more versatile offspring with better chances of survival), urging an individual to become attracted to and approach their partner. These initial feelings do not last forever but create memorable impressions that lead to long-term natural attachment, intimacy, and comfort toward each other. Without these formative feelings, relationships between people would amount to partnerships of interests or convenience (which may still work if acceptable by both parties). Such relationships would be business-like (exchanging benefits) and mechanical and, thus, emotionally inadequate. The aforementioned complementary differences, while attracting two parties, also lead to potential conflicts between them. As a result, love needs to have the following six additional traits to bring about a long-lasting relationship, which would be necessary for fulfilling its reproductive mission.

2) The foundation of love is based on kindness, which is always accompanied by the motive of doing good and avoiding harm to both parties. (It is the absence of this foundation in their love that led the characters Romeo and Juliet to suffer and die instead of experiencing happiness and life, which love is naturally intended for.)

3) Love should bring happiness to both parties. If either party is unhappy, there has got to be at least one partner who does not know how to love or to be happy (including cases of physical or mental infirmity) or does not truly love the other.

4) Love is always accompanied by an appreciation of the other partner for the happiness and benefits one enjoys due to the relationship, which is not taken for granted. Therefore, a loving relationship is one filled with plentiful gratitude.

5) Love naturally translates into fairness and the absence of abuse, exploitation, or deception. If one has to rely on their partner in a few aspects, they will always want to support the latter in some other aspects that they are more capable of or better positioned for, be it mentally or physically. Unlike political justice imposed from the outside, fairness in love comes from within and is completely voluntary (out of love, one feels happy and not under any obligation whatsoever to do good to the other, like a parent spontaneously does to a child).

6) Love can only flourish in freedom and, thus, cannot be traded, bargained for, begged, forced, or even persuaded. Apart from a common space shared, enjoyed, and strengthened by both parties to nurture intimacy and tenacity, individual private spaces can also indirectly benefit the relationship. Thus, such spaces also need to be respected and supported, unless they are potentially harmful to the common space.

7) If for whatever reason, love has to end, it may naturally bring about short-term sorrow, reproach, or even anger but never enmity (with long-term destructive intentions to exploit or cause suffering or misery to the other). If love can later turn into enmity, it never was love in the first place. True lovers still remain amicable to each other even after they part, whether voluntarily or against their will.

What makes a family is love. Genuine love should, therefore, be the fundamental ingredient to start with when building a family. A responsible lover must also use reasoning to locate the feelings and motives of the other partner and ensure that mutual love exists before engaging further to make practical efforts toward a sustainable life together and creating ideal conditions and environments for the above seven properties of love to develop, flourish, and nurture the relationship. Becoming a husband or wife for any reason other than love (whether at first sight or gradually developed) will potentially bring about unavoidable issues or suffering for all the members of the family down the road. Love is an indispensable ingredient for a happy family.

Other types of human love, such as those for relatives, friends, countrymen, and humanity also share the above seven properties to various extents while bearing their own unique feelings, qualities, and intensities.

17. Law and morality

Law and morality share a common goal: establish frameworks and limits for maintaining peace, order, stability, safety, and a basic foundation for personal and social happiness. However, these two areas operate in completely different ways. While law externally enforces and supervises order based on observable phenomena of actions, morality is voluntary and monitors order from within, based on motives underlying the actions. As observable phenomena are easier to prove than hidden motives, the fact that today's society (including even religious organizations) operates on the basis of laws and rules is understandable, practical, and reasonable. However, if we rely solely on phenomena without considering the motives behind them, we are inadvertently turning this world into a stage for fostering perpetual injustice and grim tragedies, where laws and rules become nothing but facades concealing an ever-wild backstage.

If judgments were made based solely on phenomena, two people donating the same amount of money to charity would be looked upon as equally charitable, although one's motive can be genuine compassion while the other's, possibly, just fame or an entirely different purpose that is not necessarily charitable. This may result in potentially greater harms compared to the benefits brought about by the donation. Likewise, an offender who covers up their actions and leaves no evidence will easily deceive the law and be safe. After all, if humans can create rules and laws, they can also neutralize, circumvent, or abuse them. Therefore, the more the rules, the grimmer the games of life, in which the rich and powerful will always have the upper hand, while the majority of people (mostly the voiceless, powerless, poor and vulnerable) would be the victims, either directly or indirectly, whether they are aware of it or not (for example, a case where all citizens are unaware and indirect victims of government corruption).

The above shows that the law cannot reach its original goal alone, without the help of morality, which, though inconsistent in breadth and depth across populations, has at least the prospect of saving the situation to some extent by providing an independent and distinct tool for monitoring and evaluating phenomena. While implicit, morality still exudes its positive discreet phenomena, recognizable by the experienced. Through body and mind observation, Zen enables individuals to identify and neutralize negative seeds that occasionally emerge within them while actively nurturing the positive ones to develop and reinforce morality, thereby helping gradually transform society, one person at a time. A society where more individuals "know themselves" should, therefore, be more stable and orderly, for self-knowledge will help them evaluate others more accurately, making it easier to find safe and peaceful measures to reverse, neutralize, or at least not contribute to trends that risk disturbing, degrading, or corrupting society.

18. Spiritual teachings and psychotherapies

In his many years of teaching Zen, the Buddha provided spiritual guidance and the methods (collectively referred to as spiritual teachings) that helped his followers train themselves to eventually overcome suffering and achieve the same freedom, joy, and stability he had. On the other hand, he also made it clear that his teachings were means and not ends and should always be taken as temporary therapies or remedies to treat or cure illnesses, not as absolute truths to permanently worship, enforce, or become attached to. Since teachings only cover general therapies for alleviating common mental problems while actual human suffering is often quite complex and multifaceted (and widely varies from person to person), each practitioner should carefully learn and check with different Zen Masters and practice wisely, flexibly, and verifiably to find the right therapies for their own problems and avoid becoming further lost by acquiring new and often more severe mental issues in the process.

For example, to help dispel pain arising from attachment to a concept A (say, the material world is real and permanent), Buddhism introduces a new concept of NOT A (in this case, the material world is empty and impermanent in nature) as an antidote to help patients let go of concept A and, as a result, neutralize the pain resulting from it. However, if patients let go of A just to become attached to NOT A, then they will suffer one or more new types of pain arising from NOT A, which may be even more severe than the first just because at least A has existed for a long time and is familiar to humanity, whereas NOT A is a novel and unverified domain to be explored for the first time (depending on one's religion, NOT A can also be God or any other metaphysical, supernatural, or mythical concept). This suggests that the problem is not concept A or NOT A but rather one's attachment to them, so a simple solution would be to just let go of both at the same time. To let go of A or NOT A does not mean not to use them when appropriate or when deemed more beneficial than harmful to all affected parties. It just means not clinging to them rigidly or turning them into absolute or permanent prejudices or dogmas. Only by using knowledge in this detached way can we hope to master our minds (emotionally and rationally) to some degree and free ourselves from its indefinite mechanical grip.

So how then do we not get caught up in concepts or emotions or undo existing prejudices, negative habits, or grudges? Since concepts and emotions are always present or functional in the mind and cannot be completely eliminated, an effective method should involve monitoring it in real time for prompt intervention when necessary. Zen is a method that can solve this great problem of humanity scientifically, effectively, practically, and sustainably, anytime and anywhere, while also saving our energy and improving our physical and mental health.

19. Zen and the worldly ways

Zen makes a real difference and maximizes its transforming effects on the world's suffering when we integrate the practice into our daily lives. In other words, with a grasp of Zen, we can still enter the world and engage in worldly activities based on our abilities, conditions, and preferences (and not necessarily engage in a secluded and monastic lifestyle); however, we would have a free (thorough) and secluded mind (physically engaged but not mentally attached, assimilated, carried away, or drowned in worldly business). This has been done for a millennium at Japanese monasteries, where anyone can come to learn Zen and exit at will or upon enlightenment. Thorough about themselves and others, these anonymous enlightened beings have re-entered the world, participated in all walks of life, and, thus, had the conducive conditions to influence society with their Zen manners, lifestyle, wisdom, and vision. Could this have been the main reason behind the apparent homogeneous Zen-like manners of the Japanese people, accentuated by their well-known self-discipline?

The worldly ways, or the ways the world operates, include all activities (both positive and negative) outside our bodies and minds, such as politics, economics, law, health, culture, customs, nationality, community, and family, and constitute an indispensable part of a thorough understanding of ourselves, humanity, and life (one of the two aspects of Zen). In general, whether we wish to improve the world or not, understanding and accepting the worldly ways as they are is necessary to respond to all of life's situations most effectively, calmly, happily, peacefully, safely, and healthily for ourselves and others. This chapter will elaborate on the topic "DIVIDE AND RULE" as a negative, difficult-to-see, and often not-well-understood example of the worldly ways, for the purpose of presenting some characteristic responding tendencies of Zen, which although passive and require little effort or resources, are always positive and aimed at bringing the most benefits and the least harms possible to all affected parties.

DIVIDE AND RULE

In the struggle for life, many species are aware, from time immemorial, that strength comes from uniting with one another as a defense or attack strategy against others, thus increasing their chances of survival. As for humans, in addition to the ability to unite and become stronger, we also know how to divide and weaken opponents, making it easier to overpower and control or conquer the latter. Understanding the tricks of divide to rule, through which we can get trapped and weaken ourselves is, therefore, an extremely important part of common life wisdom. Without this knowledge, the risk of losing our family or country looms large, regardless of how rich or strong we are. Mastering this knowledge will help us not only avoid getting tricked into dividing and falling apart but also preserve and strengthen the existing solidarity. For this purpose, this chapter will present mankind's basic divisive techniques employed thus far in their struggle for survival, power, or domination. These techniques have been used not only between countries around the world but also between factions or individuals in societies and even families, especially in spousal or in-law relationships.

To make it easier to follow, we shall denote two people, two factions, or two countries currently in relatively good or normal relationships or partnerships as A and B. (A and B can also be the government and the people of a country in peace, respectively). We will denote X as a third person, faction, or nation that wants to divide A and B for a certain purpose. Normally, A and B only fall into X's divisive trap when at least one of them does not know or does not believe that X is playing an active role in the exploding conflict between them. If both A and B are aware that X is the mastermind behind their escalating conflict, X has failed in its divisive plan. In each scenario, the author will also recommend the safest and most peaceful counter-measures to minimize harm to both A and B, depending on X's advantage and resources.

1) <u>X EXPLOITING EXISTING MINOR CONFLICTS BETWEEN A AND B</u>

This is the most commonly used technique. It is often effective and easy to carry out with little effort for X. There is practically no family, society, or country without some internal conflict, incompatibility, or potential trouble. Normally, these issues only take the form of a disagreement, dissatisfaction, or at the most non-cooperation, which can also be, in some way, healthy if not prompted or fueled to develop in destructive directions. However, if X has the conditions or position to foster hatred into these contradictions and cause A and B to fight and start harming each other, the latter may soon become rivals and not only weaken each other individually but also lose their previous united strength, thereby inadvertently giving X the position of control and power to possibly manipulate, profit, dominate, or even destroy A and/or B down the road if desired.

An effective motto for A and B to deal with this scenario would be as follows: The divided parties can only lose. Only the mastermind or exploiter of the division can really win. Even if A and B have erroneously fallen into X's divisive trap, estranged each other, and lost their previous united strength, the above reminder would still help them stay cautious and refrain from further weakening or harming each other, thereby still preserving, at least, what is left of their individual resources. This might save both A and B down the road and foil X's next possible plan, which is to trigger A and B to attack and disarm or destroy each other, effectively making X the strongest, capable of overpowering both A and B, an effortless victory without a battle for the divider.

As a variation of this divisive technique, X may not necessarily be the mastermind dividing A and B from the start but could just be a third party holding an opportunity to make the most out of the conflict. For example, X may even be an ally (such as a lawyer) of A or B using their influential position to blow the conflict out of proportion and profit from it as much as possible at the expense of both A and B. In the case of a weak country (A) seeking aid from a stronger one (X) against another (B), A will often have to depend on X and, sometimes, end up paying a price much dearer than the help received (such as even loss of sovereignty to X).

2) X OPENLY FAVOURING A WHILE DISCREETLY MISTREATING B

Often employed when X cannot find an effective conflict between A and B to divide them based on the above strategy, this technique would cause A to like and see X as good to them and B to feel and see the opposite way. As a result, A would increasingly want to associate or co-operate with X, while it would be the opposite with B. This would naturally create barriers between A and B and gradually drive them apart. Even if B correctly understands X's motives and intentions, it would still be very difficult for the former to convince A of it, especially when X always shows kindness to B in front of A. In many cases, A may even think of B as suspicious, narrow-minded, or not good to X and may very well become agitated or even break up with B as a result. However, in this divisive method, A faces more risk than B, for B sees the whole genuine picture and is always vigilant, whereas A does the opposite and, thus, risks losing much more than B, given the possibility that X may not be as good to A as B is (otherwise X would not have deprived A of the previous good relationship with B). As an even worse scenario, if B has the same resources and advantages as X, B may want to play the same trick back against X, turning the relationship between A, B, and X into a silent battlefield, destroying all three over time, whether A understands it or not.

The best way to deal with this situation would be for B to inform A of X's intentions once B is sure of it. If A believes B, then B has done the following three good things: (1) protected and saved the good relationship between A and B; (2) removed the risk of A being potentially harmed by X down the road, when A fully trusts and co-operates with X; and (3) prevented X from committing a bad deed. Conversely, if A does not believe B, then B has also done the following three good things: (1) informed A about X, which would prevent regret in case X betrays and harms A down the road; (2) prevented time and energy expenditure in dealing with X's on-going mistreatment; and (3) recognized that A's past relationship with B was superficial and unsubstantial and that unilateral withdrawal from it is a good and proper thing to do, at least until the unhealthy situation has changed.

This divisive technique is often used in in-law/spousal and step relationships, where two (or more) loving members (A and B) of a family live with a third one (X) who may love one (A) but not really the other (B). In in-law relationships, X could be the father-in-law, mother-in-law, son-in-law, daughter-in-law, or even sibling-in-law. In step relationships, X can be a step-parent, step-child, or step-sibling.

3) X COVERTLY STAGING A MISUNDERSTANDABLE SCENE TO CREATE DOUBTS BETWEEN A AND B

This technique is carried out completely in the dark, with neither A nor B knowing or even suspecting the involvement of a third person, X. What X would want is to have B witness a scene in which A appears to do something wrong or be the most logical or probable suspect in the wrongdoing. A is aware of its innocence but due to a lack of understanding and the convincing explanation of the situation staged by X, a doubt is inevitably raised in B 's mind, which may gradually draw the relationship or co-operation to a possibly tragic end according to X's plan if not brought to light in a timely manner.

Following are some mottos that may help B effectively deal with this divisive technique:
- Moderate cooperation in doubt and vigilance (with A) still bears less immediate risks and more future chances of A and B regaining solidarity than them becoming rivals.
- Phenomena do not usually represent the full picture, and A's actions do not necessarily reflect the underlying motives.

The best way to deal with this situation would be for B to discuss directly with A about their doubts and explore the possibility of A being framed by a third party (since A may not have even thought of this possibility).

This divisive technique is very popular in politics. The history of Vietnam and the world still records countless cases of dedicated officers/heroes of integrity (A) being framed by corrupt ones (X) for defamation, dismissal, or even capital punishment by authorities (B) or of two countries or factions (A and B) declaring war on each other as a result of a third country or faction (X) using covert intelligence to stage and cause misunderstandings. This technique is even used in families, especially in spousal or in-law relationships, to divide a spouse from their parents' family or to even separate couples.

4) X EXPLOITING A STALEMATE SITUATION TO BRIBE OR COERCE A INTO HARMING B

This could be the most poisonous divisive technique, in which X rescues and welcomes A from a dead-end situation, leaving A no choice but to obey, in many cases, even illegitimate/illegal demands of X and eventually fall into X's permanent control with little chances of escape (because X holds all evidence against A). Meanwhile, B may face great danger as a result of not expecting disasters coming from A. However, if B understands A's circumstance and X's plot, the former may still want to cautiously continue the relationship with A just for the purpose of neutralizing further destructive plots from X and rescuing A from the stalemate situation.

Many criminal gangs (X) require those wanting to join (A) to be addicted, commit severe crimes, or even murder before admitting them so to permanently separate them from the police or the public (B) and have long-term control over them.

5) X LURING A INTO LEAVING B AND JOINING X

To succeed in this scheme, X must be able to offer A more benefits or pleasures than B, making A like X more.

a) In case X just wants A to leave B and come to X, the following motto would help B avoid harmful reactions to themselves or A: "Welcome those coming and let go of those leaving." Once A has decided to

leave B, B should find a new ally or friend for themselves. The only risk for both A and B in this situation is that they would lose the current good partnership and not know if the next one would be better.

b) In case X can convince A to hatch a plot against B before coming to X, it could prove disastrous for B. However, A's risk in this situation is not low either, for if B finds out or anticipates the possibility of this scheme, A may risk exposure or total failure. Furthermore, even if A were successful in harming B, X may still dump A in the end if X suspects that A may turn back and do the same to X down the road.

This technique is widely used in the business world, politics, workplaces, families, and relationships.

6) X EXPLORING A MINOR SHORTCOMING OF A TO LURE OR PROVOKE A TO DO WRONG AND THEN SHOW B EVIDENCE OF THE WRONGDOING

This is the most effective technique for X to openly remove or divide A from B and gain B's support in most cases. The purpose of X is to create the best conditions for A to inadvertently harm themselves out of greed, madness, or ignorance. The only way for A to deal with this scheme is to discipline themselves into not doing things (big or small) that are wrong, appear to be wrong, or may maliciously be used against them, wisely observe their feelings and ambitions, anticipate all possibilities (including entrapments), associated risks, and optimal responses in all circumstances, and always create a safe shield/space around themselves, similar to a turtle covering its body with shells, soldiers wearing protective gear in battles, or monks observing precepts.

Seduction, bribes, and provocations are common examples of this technique.

7) X RULING WITH BENEFITS, CAUSING BOTH A AND B TO COMPETE FOR THEM AND NOT UNITE AGAINST X:

This is often used when leading an organization, group, or nation and can be considered the healthiest divide-and-rule technique, benefiting all parties while harming none. Because no leader would want their subjects or subordinates to form alliances to expose the leader's inevitable weaknesses, shortcomings, mistakes, or failures (no person, organization, or government is perfect), most use benefits (jobs, status, fame, privilege, salary) to transform negative collective oppositional energy into positive individual-promoting energy, thereby creating an environment where most people would rather invest their time and effort based on their own interests and advancement than in risky pursuits that could prove harmful to the authority. This has historically proven to be collectively beneficial for the whole society, for the majority of people's energy is efficiently channeled toward undertaking useful constructive work and not devoted to futile fighting or wasteful destructive activities—a perfect model for quickly building up a country while maintaining political stability.

- In North America, individualism is promoted in parallel with patriotism. This clever combination has brought wealth and stability to the United States for almost its entire history (except for just the four-year civil war in 1861 due to President Lincoln's abolishment of black slavery).

- Deng Xiao Ping's motto—To be patriotic is to get rich lawfully—in the 1980s has helped put China in its current position of an economic superpower, with decades-long political stability.

CONCLUSION

The above are just typical techniques. In reality, divisive tactics can be much more sophisticated and ambiguous, combining all kinds of tricks and entrapments, making them very unpredictable and difficult to deal with. Even if figured out, they are usually impossible to prove and, thus, can only be at best interpreted in the form of conspiracy theories. Because of this, assuming that although A and B are currently in harmony, they must always remain vigilant, discreet, and protective of each other and not create

opportunities or favorable conditions for third parties (X) to undermine or break up their solidarity. If a conflict suddenly arises after long years of peaceful cooperation, both A and B should question the possibility of a latent divide-and-rule plot (to determine who X is) and evaluate all potential risks while not eliminating the possibility of a genuine non-plotted conflict (for pertinent mediation and resolution).

In short, the meaning of the ancient Vietnamese proverb, "Unify and live, or divide and perish", a maxim drawn from the country's four thousand years' history, is that every division between A and B will sooner or later offer a good opportunity for third parties to exploit. This implies that regardless of how contradicting A and B are, the consequence of the contradiction will still be less harmful than division or rivalry between them. Therefore, the key message here is to learn the art of co-operating or co-living in conflict without creating opportunities for outsiders to exploit, divide, and conquer. The sharpest tools for detecting divisive plots is intuition combined with information derived from multiple sources, whereas the greatest obstacles are emotions (e.g., love, hate, anger, joy, sadness, and greed) and prejudice (e.g., rigid view/stance, factional mindset, and local/restricted vision). Particularly in the field of politics, if the lessons of history are not learned, they will repeat. And in history's view, the greatest success or credit of a government or leadership is the victorious defense of the country, whereas the greatest mistake or offence is a failure to protect its sovereignty.

20. Alcohol and Zen

Nerve cells communicate with each other through neurotransmitters. A partial effect of alcohol on the brain is to inhibit certain neurotransmitters while stimulating others, thereby distorting the brain's normal functions. A few short-term effects are produced and enjoyed by some in exchange for many long-term problems faced when individuals abuse or become addicted to alcohol (more harms than benefits).

Alcohol's meager benefits include the following:

- Alcohol gives a short-term sense of pleasure and excitement to drinkers and is especially favored in social events or get-togethers because it evokes immediate and obvious moods of joy, excitement, and enthusiasm in people, such as talking and laughing more.
- Alcohol temporarily inhibits, to various extents, the ability to think clearly, making the drinker unwilling or unable to worry or become absorbed in their thoughts or emotions. As a result, the mind becomes, somewhat, comfortable, carefree, and relaxed. This effect is particularly appreciated by those who are overstressed or consumed in frustration, anxiety, or melancholy because all of these symptoms can be immediately relieved by simply drinking some alcohol without having to resort to lengthy meditation or complicated analysis/solution-searching. Also, with the inability to think lucidly, as when one is sober, drinkers tend to speak their minds (like a child), although the accuracy or reliability of what is spoken is questionable and varies with the amount of alcohol consumed. Some people even take advantage of drinking opportunities to pretend they are drunk and openly say or do what they have always wanted to but legitimately could not do so. Having once uttered such things without inhibition, the words can then be blamed innocuously on alcohol. On the other hand, people with a high alcohol tolerance can extract information from others or test those with lower tolerances, for the more the person is drunk, the harder it becomes to think or manipulate the truth; thus, the more likely one is to speak their mind.
- At first, a drink consumed after dinner or before bed can make it easier to fall asleep in the short run, thanks to the proven depressant property of alcohol. If continued, however, this habit may gradually lead to chronic insomnia, consequently increasing alcohol dependency (as an alternative to sleeping pills) and potential alcohol addiction in the long run.

To receive the above fleeting meager benefits, here are the dearer prices that alcohol consumers and others will have to pay to various extents:

- Under the above effects of alcohol, the drinker's ability to think and work will be more or less limited or even completely compromised depending on the alcohol intake level. Even when consumed in moderation, the brain's performance is still negatively affected, resulting in reduced quality of work, accuracy of judgments, and clarity of mind.
- Alcohol has been scientifically confirmed as a depressant agent. Following the above direct and immediate effects is a longer period of depression, which continues to reduce thinking quality and work performance and adversely affect personal, family, and social well-being and finance. (Depression is defined as a state of reduced brain activity, in which the brain cannot think as quickly, effectively, and efficiently as normal.)
- Prolonged alcohol abuse can lead to chronic depression and addiction, for which there is no quick or easy treatment. Even after the post-drinking depressive period has passed, the hangover or torment of alcohol will continue to linger and affect the mind, more or less reducing the individual's ability to think and work effectively and constantly urging them to further consume alcohol and get entrapped in this hard-to-resist spell. This way, drinkers can be gradually driven into addiction, which translates into risks of financial bankruptcy, family breakdown, or even the collapse of entire communities/populations down the road.
- Apart from the above negative effects and other known mental problems, including mood changes, dementia, hallucination, and slurred speech, alcoholism has also been medically

confirmed to promote risks of liver inflammation, fibrosis, cancer, type-II diabetes, heart disease, stroke, brain hemorrhage, gallbladder stones, oral/throat/esophageal/bowel/liver/breast cancer, lung infection, pancreatitis, gastrointestinal disease, osteoporosis, birth defects, high blood pressure, and many other negative effects, including brain atrophy, asthenia, infertility, hypogonadism, malnutrition, muscle contraction, imbalance, inaccurate limb movement, limb numbness, and chronic insomnia.

- Alcohol has also been identified as a cause of many social problems, such as crime (e.g., rape, violence, robbery, and murder), traffic accidents, fall accidents, alcohol poisoning, suicide (out of depression, boredom), and unemployment (due to reduced productivity).

This clearly indicates that alcohol is a toxin to our bodies, just like any other addictive substance such as tobacco, marijuana, and drugs. A common element between these toxins is that they activate the body's various alert mechanisms (supposed to help us deal efficiently with dangers), resulting in temporary clear-mindedness and/or energetic feelings and artificially induced states of mind that can gradually drive us to addiction. In other words, while the benefits of alcohol, as presented at the beginning of this chapter, are all artificial and temporary, the harms it causes to our bodies, families, and society are very real, increasingly severe and difficult to undo, and potentially permanent.

Zen and alcohol (or any other addictive stimulant including tobacco, marijuana, and drugs) do not align because of their following counter-effects:

- While Zen helps us free the mind and gain some degree of sovereignty over it, addictive substances enslave and relentlessly control it. Addiction can, therefore, only be a sign of an unsuccessful or never-successful Zen practice.
- Zen can help us cope effectively with and gradually treat addiction, whereas the latter not only cannot help but is also a major obstacle to Zen practice. The artificial state of euphoria and pleasure temporarily brought about by stimulants is by no means the ultimate and stable happiness experienced through Zen.
- While alcohol inhibits the brain's ability to think and leads to depression, Zen facilitates brain functions in the most efficient and energy-saving way possible and, thus, can gradually improve and eventually cure depression once and for all without any need for medications.
- While addictive substances only create temporary hallucinations or delusions in our minds, Zen helps us maintain a genuine and holistic view of ourselves and the world (including alcohol). This helps in gradually integrating a stable, active block of knowledge that will over time pull us out of ignorance, misunderstanding, and illusions—the main causes of all human psychological suffering.
- Fleeing suffering, anxiety, or discomfort through stimulants takes away valuable and necessary opportunities and motives for meditators to observe, understand, and resolve problems from their roots in a healthy and sustainable way.

APPENDICES

A. Modern nutrition

Because our brains are part of our bodies, and only their contents and the way they operate constitute our minds, our bodies and minds are obviously integral and inseparable. As a result, if our bodies are stressed, tired, sick, poisoned, or malnourished, our minds will inevitably be affected and have to find ways to resolve or cope with those physical sufferings. With today's abundant scientific knowledge freely accessible online, taking care of ourselves and staying healthy has never been easier.

The author hereby recommends a modern, scientific, simple, healthy, and inexpensive diet that would be suitable for all demographics, rich or poor, spanning all professions across the globe. This diet will not only help reduce illness and maintain physical health, but also promote mental well-being, comfort, and stability, making Zen practice especially conducive. Keeping pace with the development of modern medicine, the author has gradually updated and applied this method for over 30 years and realized positive results for both body and mind that have surpassed expectations. The following are summarized guidelines that should be used flexibly and monitored during daily meals. They can also be potentially combined with other relevant scientific knowledge to find the appropriate dosage and consumption method for each individual and situation.

A MODERN DIET

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 or long-term symptoms after acute infections such as COVID... are related to Metabolic syndrome and originate from the current state of humanity eating more than necessary, living unnaturally, eating too much nutrient-depleted processed foods full of harmful chemicals, and being exposed to all kinds of stress and artificial environmental pollution. Metabolic syndrome is the most prominent public health threat of the 21st century, with 5 typical signs including 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 contract 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 also limited and constant. These two fixed factors establish the foundation for the human natural lifespan. Below is a diet capable of helping us live healthily until the end of our natural lifespans without having to worry about the above mentioned modern diseases. This diet also helps to maximize longevity by not wasting heart beats through unnecessary or unhealthy psychological, physiological, physical, or social activities that would otherwise impose their cumulative tolls throughout life (the faster the heart beats, the shorter the lifespan). This summary incorporates the following modern medical foundations and personal experiences:

I. The LUV (Low Uric Values) diet, presented in *DROP ACID: The Surprising New Science of Uric Acid* by Dr. David Perlmutter (published in 2024, USA), aiming at optimal health through reducing blood Uric Acid level.
II. Dr. Shinya's diet, presented in *THE ENZYME FACTOR* (published in 2005, Japan) and *THE MICROBE FACTOR* (published in 2017, USA) by Dr. Hiromi Shinya, aiming at optimal health through maintaining a healthy enzyme reserve and microflora.

III. Dr. Nagumo's diet, presented in *BEING HUNGRY MAKES YOU HEALTHY* by Dr. Yoshinori Nagumo (published in 2012, Japan), aiming at optimal health through daily activation of the rejuvenating Survival gene group.
IV. Dr. Lustig's diet, presented in *METABOLICAL: The Lures and Lies of Processed Food, Nutrition, and Modern Medicine* by Dr. Robert H. Lustig, (published in 2021, USA), aiming at optimal health through reducing Insulin.
V. The writer's over 30 years' accumulated knowledge and experience in nutrition.

GUIDELINES

1) Organic foods: Give priority to seasonal organic foods grown/raised locally and naturally (on fertile soil or free run instead of in greenhouses or cages, using organic fertilizers instead of NPK synthetic fertilizers, and free of pesticides, antibiotics and toxic or artificial chemicals), fresh (not spoiled, moldy, rotten, expired, or exposed to air for too long after unpacking, cutting, or cooking), raw (uncooked or unprocessed, such as fruits and vegetables...), wholesome (whole grains containing both germ and bran, whole vegetables and fruits including peel, whole fish/seafood...), and non-GMO's. Food bought directly from farmers or at local markets is usually better, safer, cheaper, and more environmentally friendly than at supermarkets. Only when organic foods are unavailable should you consume lower-quality foods (in limited quantities), making sure to remove or neutralize as much unhealthy contents as possible.

2) Processed foods: Do not consume artificial or manufactured foods (such as carbonated soft drinks, chewing gum, candy, chips, sausages, foods containing synthetic additives or preservatives, dairy products...), refined foods (such as sugar, white starch, white rice, refined cooking oil, refined salt...), or addictive substances (such as tobacco, alcohol, tea, coffee, sweet/banned substances...). Carefully read the ingredients and research the manufacturing processes before buying processed/non-organic foods, or non-organically grown/raised plants/animals. Processed food is the cause of metabolic syndrome, which leads to chronic diseases that gradually degrade the body and increase the risk of acute illness. Processed food also feeds cancer cells (which would otherwise be eliminated by the immune system) exactly what they need to thrive. Autoimmune diseases (such as Crohn's) are consequences of processed food causing gut leakage, allowing gut bacteria to sneak into the bloodstream and disrupts the immune response, triggering chronic inflammation.

3) Sweets: Do not use artificial or refined sweeteners (including sugar). The only sweets that can be consumed freely are fresh fruits, but they must be eaten as a separate meal, not with other foods, nor blended or juiced. If extra sweet taste is needed for cooking or food preparation, you can use very limited amounts of raw honey (unpasteurized, normally containing 85% Glucose and Fructose, and 15% including many other sugars, minerals such as Zinc, Copper, Iron, Manganese, Chromium, Selenium, Magnesium, Calcium, Potassium, Vitamins such as A, B1, B2, B3, B5, B6, C, E, and Flavonoids such as Quercetin, Luteolin), natural stevia, monk fruit (which is calorie-free, cures colds, and aids digestion), maple syrup, or organic Allulose (found in figs and raisins). Otherwise, absolutely do not eat or drink sweets (including fruits) immediately before, during, or immediately after a regular protein & grain meal.

4) Protein: Do not consume milk or dairy products sold on the market. Avoid or refrain from consuming animal meat (as well as eggs), which contains harmful blood-clotting fat, uric-acid-forming purine, Choline (sticking to arteries, causing vascular disease and insulin resistance), a lot of iron (a harmful oxygen radical if in excess), and 3 essential branched chain amino acids (Leucine, Isoleucine, and Valine, accounting for 20% of muscle and found in abundance in corn or corn-fed animals, will be converted by the liver into liver fat or Glucose if in excess). Tryptophan, an important (as a precursor to the brain hormone Serotonin) and the rarest of the nine essential amino acids, is found in fish, nuts, spinach, and soybeans. Consuming limited amounts of whole fish and seafood is not objectionable thanks to its good cholesterol and abundant nutrient contents, but beware of its still harmful purine contents. Plant proteins are recommended substitutes because they contain neither purines nor harmful fats and are much more economical and environmentally friendly. Except for soybeans, all other sources of plant protein (including grains, vegetables, beans, seeds, nuts, etc.) do not contain all 9 essential amino acids, so you need to combine different plant proteins in a

meal to have the same quality of animal proteins while staying free of bad cholesterol and harmful purine. Plant proteins are not quantitatively inferior to animal protein in terms of amino acid contents. You need and should only eat about 0,8-1g of protein per day (whether animal, seafood, or plant based) for each kg of body weight. Do not exceed this level because excess blood amino acids will increase blood acidity and gradually thin bones and teeth. Beware, however, that all beans (such as lentils, peas, chickpeas, green/ red/ black beans, etc.), nuts (such as macadamia nuts, walnuts, hazelnuts, chestnuts, etc.), cereals/grains, and oil seeds in pods (such as almonds, cashews, sunflower seeds, lotus seeds, sesame seeds, melon seeds, pumpkin seeds, peanuts, flax seeds, and so on...), despite being healthy sources of protein, starch, and fat, also contain toxic Lectin proteins that can cause digestive problems, vomiting, or even diarrhea, so they need to be soaked (twice, according to the author's experience) overnight to remove as much Lectin as possible before cooking or processing (such as fermenting, sprouting, stewing, boiling, or roasting) to breakdown any remaining traces of it. (Lectins are found in the highest concentrations in the outer layer of plants to protect them from being eaten by insects. See *Steamed rice & bean recipe*, Section 12.) Mushrooms are rich in vitamins, antioxidants, minerals, fiber, and protein, which help boost the immune system, support intestinal health, reduce the risk of metabolic diseases, and improve brain health. White mushrooms are especially rich in Vitamin D. Adequate green vegetables should always accompany proteins and grains in meals to reduce blood acidity while supplying the intestines with abundant healthy fiber.

5) Starch: Avoid foods containing gluten (which increases inflammation and uric acid) such as sugary foods and certain grains including wheat, rye, barley, triticale, and oats. Consume starchy roots (such as carrots, parsnips, sweet potatoes, and yams) in moderation (a few times a week) and gluten-free whole grains (such as brown rice, wild rice, millet, quinoa, amaranth, buckwheat, and sorghum) at will. Starch should always be eaten with fat, protein, and green vegetables to minimize abrupt increases in blood glucose and insulin. Avoid refined starch such as white rice, white flour, and grains or beans that have had the bran and germ removed (See *Steamed rice & bean recipe*, Section 12).

6) Fat (Lipid): Absolutely do not use saturated fats (which solidify at room temperature), animal fats (especially shortening), butter, margarine, or any refined cooking oils sold on the market, which have been oxidized and/or contain abundant trans fat (a toxic artificial fat causing severe inflammation) due to the refining process. The term "Partially hydrolyzed" in processed foods' ingredients is a code for trans fat. Regular consumption of fresh avocados, steamed or stewed whole fish and seafood (containing beneficial fats), and steamed whole grains, beans, oil seeds, and nuts should provide abundant healthy natural essential fats for the body without causing insulin resistance or overweight. Extra virgin olive oil, sesame oil, and fish oil may be eaten raw or added to readily served dishes in moderation only if necessary, but without frying or exposing them to air for too long. Regular intake of fish oil supplements (Omega-3 fatty acids) is recommended, but make sure they are free of synthetic additives. Omega-3 fatty acids are among the healthiest substances of all foods (which the body almost always lacks and need) and are, therefore, not burned but stored by the body for use in cell membranes and nerve cells. Omega-3 prevents fatty liver, heart disease, fights depression, reduces suicide/self-harm rates, reduces aggressive/resistant behaviors, relieves stress and anxiety, and is found in fish oil, algae/seaweed, seafood, breast milk, walnuts, flaxseeds, chia seeds, etc. The body has 3 fat stores: (1) Subcutaneous fat and buttocks: Safe if under 10Kg; (2) Visceral and abdominal fat: Safe if under 2.3Kg; (3) Liver fat: Safe if under 0.1Kg (Most liver fat is caused by added sugars).

7) Spices: Avoid using foods containing synthetic additives (such as MSG, borax, and other chemicals in the lists below) or high levels of pesticides, growth stimulants, antibiotics, preservatives, etc. Read the ingredients carefully when buying processed or frozen food. Sea salt (which also contains many natural minerals that offset its harmful effects) may be used in limited quantities but must be stored in air-tight containers and used up as soon as possible to minimize oxidation, which creates extremely toxic strong acids. Regular consumption of more than 11g of salt/day may lead to fatty liver and diabetes. Fish sauce, soy sauce, or any type of sauce or spice mixture may be used in limited quantities as long as it is naturally brewed or produced and contains only natural ingredients, water, salt and yeast, without synthetic additives such as MSG (MonoSodium Glutamate or Flavor Enhancer), preservatives, stabilizers, emulsifiers (a

symbol of processed food), synthetic flavors, food coloring, baking powder, etc. Feel free to use any natural spices (the fresher the better), including onions, garlic, chives, ginger, pepper, chili, mustard, and especially turmeric (a member of the ginger family containing Curcumin, a phytochemical (Polyphenol) with antioxidant and anti-inflammatory properties). Squeeze abundant lemon juice to cooked or prepared dishes just before serving to add Vitamin C to the diet while enriching food taste.

8) Naturally fermented/cultured foods and fiber: Such as kimchi, pickles, mayonnaise, kombucha mustard, horseradish sauce, fermented hot sauce, relish sauce, fermented salsa sauce, etc., are rich in enzymes and probiotics and should be consumed regularly if not daily, as long as they do not contain synthetic additives. Probiotics help improve sugar and uric acid metabolism. The fermentation process creates lactic acid, which improves intestinal health, increases the absorption of vitamins and minerals, acts as an antioxidant, strengthens muscles, reduces inflammation, and beautifies the skin. Foods rich in prebiotics (fiber) such as artichokes, asparagus, bananas, garlic, barley, potatoes, onions, shallots, beans, blueberries, apples, flaxseeds, cocoa, nuts, seaweed, vegetables, bran, etc., should also be consumed every meal. Fiber is one of the most important nutrients because it can single-handedly keep both the liver and intestines healthy. Inulin fiber in garlic, onions, bok choy, asparagus, etc., slows down the release of sugar in the body, promotes good intestinal bacteria growth, and inhibits the Xanthine Oxidase enzyme essential for producing uric acid. In case of digestive problems, take supplements of enzymes, coenzymes (such as Q10), and as many strains of probiotics as possible on an empty stomach right before meals (make sure they're free of synthetic additives)

9) Drinks: Avoid distilled water and all unnatural drinks (including fruit juices/blends), except for organic cocoa drink (containing no synthetic/refined additives) and burdock tea (which is non-addictive and effective in treating inflammation and allergy symptoms, contains abundant Saponin that neutralizes fat, enhances digestion, absorbs starch and protein, eliminates excess cholesterol, and also contains extremely strong antioxidant Polyphenols, making burdock difficult to decompose in soil). Drink water in moderation during the day to prevent thirst (do not force yourself to drink) or at least 3 times a day on an empty stomach, whether thirsty or not (in the morning when you wake up, 30 minutes before lunch, and 30 minutes before dinner), so to maintain a very light urine color, keep your throat moisted (not feeling dry or thirsty) all day long, and urinate no more than 5-6 times a day (a sign of excess water). Water includes filtered water (filtered of impurities, bacteria, heavy metals, chemicals, etc,) natural mineral water, and alkaline water ($7.5 < pH < 8.5$). Waiting until you are thirsty to drink is already too late, for harmful cumulative effects have already taken place in the body. Refrain from drinking water immediately before, during, and immediately after eating to avoid diluting gastric juices, hindering digestion. Drink water at 20°C or higher and avoid drinking ice cold water, except possibly in hot weather.

10) How to prepare and store food: Eat fresh and wholesome foods wherever possible (including leaves, peels, roots, bulbs, bran, germ, skin, shells, bones, heads, fat, etc.): Leaves contain abundant minerals and vitamins; Peels/shells contain antioxidant polyphenols; Roots contain starches and enzymes; Fish skin contains injury-healing substances and, right below it, 2 very healthy Omega-3 fatty acids, DHA (DocosaHexaenoic Acid) and EPA (EicosaPentaenoic Acid), preventing atherosclerosis. Fats in fish and seafood are beneficial while those in animals are harmful. Other parts of fish and seafood, including heads, organs, and bones, etc., all contain nutrients the body needs. Eating whole foods ensures a comprehensive supply of beneficial nutrients (including even those possibly still unknown) in their natural proportions. Eating fruits with peels/skins helps with anti-oxidation, rejuvenation, and increased immunity, for most vitamins and antioxidants are located just under the skin to protect plants from being oxidized or rotten. Eat immediately after peeling, cutting, cooking, or unpacking, and avoid chopping ingredients to minimize food exposure to air and oxidation (decomposition). If cooking is necessary, it's best to boil until just cooked, simmer in water (boiling water keeps the temperature within 100°C, limiting the destruction of nutrients), or at worst, roast at temperatures below 110°C. Absolutely do not fry, deep-fry, or stir-fry (boiling temperatures over 115°C will destroy all enzymes and most nutrients and turn unsaturated fats into toxic Trans fats). Do not use microwave ovens or pressure cookers, and only use low heat when cooking. Only prepare enough food for each meal. Leftovers, if any, must be covered (air tight if possible, to minimize

contact with oxygen in the air), refrigerated (to slow down the oxidation process), and eaten as soon as possible. Freezing food will gradually decompose its nutrients and should only be a temporary way of preservation. Meat and fish frozen for over 2 months must be discarded. Do not eat spoiled or expired food, or food that has been exposed to air for too long.

11) Fasting: *[NOTE: Fasting is not for growing children or premenopausal women, who are prone to hypoglycemia. These two groups cannot afford to starve. Premenopausal women in general only accumulate subcutaneous fat (harmless) and not visceral fat (harmful), so fasting therapy will not be necessary for this group until menopause.]* Have a meal only when hungry and only until 60-80% full, and do not snack (Eating until 60% full is best and should prolong life by 1.5 times in the long run; Only eat 80% full if you did not consume enough calories the day before). The feeling of hunger activates the process of autophagy, detoxification, and rejuvenation in cells. Fast for at least 12 hours everyday, just drinking enough water. This fasting period should be gradually increased to 16 hours daily (optimal for working age) or even 20 hours as needed (depending on living conditions, age, or work demands) after 4 months, when the body begins to enjoy the very real, obvious, and stable benefits of fasting. The feelings of hunger, discomfort, and cravings, and the urge to return to old harmful overeating habits should only be present for about a week. Starting the 2nd week, the new health regimen will gradually be accepted by the body with joy, satisfaction, and no more struggling. During the daily fasting period, moments of low-energy feeling may emerge. Simply sleep for about 10-15 minutes to allow the body to switch to burning visceral fat, or have a fresh fruit snack, and you will feel great again. Fasting for more than 14 hours a day will help increase autophagy, burn liver fat 24/7, improve insulin resistance, reduce insulin levels, lose weight, reduce inflammation, reduce the hunger hormone Ghrelin, control blood sugar, improve memory, fight stress, slow down the aging process, and prolong life.

12) Meals: Depending on how hard, dry, chewy, or soft the food is, chew 7-75 times (or until the food is well ground and mixed with saliva) to complete the first stage of digestion before swallowing. Chewing thoroughly also helps bones and jaw muscles develop well, keeps teeth straight, helps blood circulation in veins, activates brain cells, stabilizes nerves, increases concentration, and stimulates the secretion of the rejuvenating & anti-aging hormone Parotin. Chewing also helps secrete saliva to wash away oral bacteria, remove dental plaque, eliminate bad breath, moisturize the throat and digestive tract, and finally join the blood stream and increase blood circulation. The maximum food size absorbable by the intestinal wall is 15 Microns. Once further broken down by the stomach, food larger than 15 Microns will rot and produce toxins in the intestines before being excreted. Chewing thoroughly will save the amount of food that would have been wasted, along with the energy that would have been lost to process and eliminate the resulted harmful products. Chewing thoroughly also increases blood sugar while eating, thereby suppresses appetite, prevents overeating, and helps to lose weight. Chewing thoroughly also kills right in the mouth parasites (of usually 4-5mm in size) living in meat, fish, vegetables, etc. Foods with firm textures require thorough chewing for swallowing and are thus better than soft ones. Drink water at least 30 minutes before meals and refrain from doing so right before, during, or right after meals.

* *Regular meals* = 35% (green vegetables & avocados/nuts/oil seeds) + 50% whole grains + 15% protein (beans/fish/seafood/eggs). Start your meal with fresh green vegetables. Do not eat anything else after a meal (especially sweet desserts) until feeling hungry again (in 4-6 hours). As a rule of thumb, a healthy regular meal only needs to have 3 main components: (1) 35% vegetables and fat, (2) 50% starch, and (3) 15% protein, all of which should be eaten as wholesome, as fresh, as much plant-based and little animal-based, and as little cooked or processed as possible.

	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*: You can combine different types of fresh fruit in a fruit meal (avoid combining sweet fruits with high-acidic fruits). The sweeter the fruit, the less vitamin C and nutrients it contains. Melons (including watermelon, honeydew, cantaloupe, green melon, yellow-fleshed cantaloupe, etc.) must be eaten

in a separate meal. Do not eat anything else until feeling hungry again (in 1-2 hours).

* Based on the above guidelines, meals can be flexibly arranged during the day according to your own work schedule/ nature, preference/convenience, changing health status, and/or dietary needs. In general, you should eat at least 1 regular meal and 1 fruit meal a day outside the fasting period. If working part/full-time, you may eat 2 regular meals and 1 fruit meal, or even 3 regular meals and 1 fruit meal a day if needed. Fruit meals are also allowed during the daily fasting period, only when feeling hungry or low-energy. Multivitamin and multimineral supplements (only those free of synthetic additives) can be taken with regular meals only in case of shortage of organic/natural food in your diet (no more than 1-2 pills/week).

* *Steamed rice & bean recipe*: Mix 1.5 cups of a mixture of 3 types of beans (such as green/black/red beans, chickpeas, peas, lentils, etc.) with half a cup of nuts, oil seeds, or a mixture of them (such as almonds, cashews, sunflower seeds, lotus seeds, sesame seeds, melon seeds, pumpkin seeds, peanuts, etc.) and soak them overnight in a mesh sieve dipped near the top surface of a deep pot filled with water so to allow the toxic Lectins to settle to the bottom (see picture). Discard the soaking water the next morning and repeat the process for at least another 3-4 hours. Also separately do the same with 4-5 cups of brown rice (only husked, keeping bran and germ) or a mixture of 2 types of brown grains (such as rice, wild rice, millet, quinoa, barley, sorghum, etc.). Drain off all soaking water, rinse, then pour the soaked ingredients into a rice cooker, mix them well, add one line of water for each cup of ingredients (6-7 lines in total), and push the "Cook" button as if cooking rice normally. (This dish already contains protein, starch, fat, and fiber and only needs green vegetables to form a balanced meal.)

13) Medicines, food additives, and addictive substances: All Eastern and Western medicines are toxic. Except for antibiotics, all other drugs only aim to quickly relieve the symptoms without eliminating the underlying root causes of diseases and should be avoided if other options are available. Most non-communicable diseases today can be gradually cured by this diet over time. Even fevers should only be cooled down by wearing thin clothes, applying cold compresses to the forehead, neck, armpits, and groin, turning on the air conditioner, and drinking twice as much water as usual to avoid heat shock and dehydration (the higher the body temperature, the more effective the immune system). Antipyretics should only be taken when the body temperature starts to exceed 39°C, for at 40°C, proteins in your blood will dissolve, forming blood clots that block blood vessels, leading to coma. Carefully research on food production processes, read the ingredients carefully, and avoid buying foods containing synthetic additives or known hidden harmful by-products. Do not use tobacco, banned substances, added sugars, coffee, alcohol (except possibly red wine, which may be used in moderation only if necessary, thanks to its rich content of antioxidant polyphenols), and tea. (Tea contains abundant Catechin that will form Tannin, an acrid-tasting substance that is easily oxidized when exposed to air or high temperature and transforms into Tannic Acid, which hardens proteins, thins the stomach lining, causes gastritis, and damages DNA, easily leading to stomach cancer.)

14) Eat a variety of foods: Because all foods contain both useful nutrients and unneeded or unwanted substances, changing your menu regularly will give the body sufficient time to eliminate or purify the harmful effects caused by each type of food. Always monitor your body's reaction to foods, identify those that you may be allergic to or have difficulty digesting (such as dairy products, soy, wheat, gluten, etc.) to abstain if necessary, and experiment with changing ingredients, dosage, and cooking methods to optimize your health. Eat and drink in a way that suits your health conditions, nature, age, lifestyle, and environment. Although the guidelineses presented here are scientific and fairly universal, flexibility and creativity are still needed in their application because no two bodies are exactly alike, and no one diet is suitable for everyone. Occasional eating against the rules (e.g., eating out, partying, relaxing the fasting schedule when feeling tired or low-energy, etc.) can also be useful in testing the body's resilience and ability to detoxify, recover, and adapt, and/or in replenishing nutrients possibly in short. On the other hand, regularly following this diet will help the body get the nutrition and rest it needs to purify and maintain stability and balance.

15) Sleep, exercise, air, sunlight, and body temperature: 7-9 hours of sleep is essential every night. A 20-to-30-minute nap is also recommended following regular meals, and a 5-to-10-minute, when feeling

tired. Deep sleep (Non-REM or Non-Rapid Eye Movement) will help lose weight, tone muscles (saving the effort of exercising), maintain beautiful and healthy skin, and prevent cancer. Regular moderate exercise (without feeling tired in hours) is necessary throughout the day (at least a few minutes every hour, especially when you have to continuously sit, lie, or stand still), most recommendedly in the form of manual labor or walking (This will help lymph circulation and stimulate the production of new mitochondria, rejuvenating the body). Daily 10-15 minutes' exposure to early morning sun should help create Vitamin D for Calcium absorption, but do wear sunglasses and cover your skin well against strong sunlight for the rest of the day. Refrain from playing strong sports or doing strenuous exercise, which should cause more harm than good healthwise. Air is free food. Being partially aware of one's breathing during daily activities will ensure adequate oxygen intake for physical endurance and mental well-being. This implies not to get carried away by anger or other excessive passions/emotions, which deprives the body of otherwise better used energy, in light that the brain already consumes about 25% of the body's total energy consumption even during sleep.) Also beware of overbreathing, which will lead to hyperventilation (oxygen intoxication). Regular showers should make breathing through the skin easier. The optimal body temperature is 37-37.5°C, below which immunity deteriorates quickly, increasing overall health risks.

16) Simple cures and preventive measures:

- 5 minutes' daily breast massage (while following this diet) will help blood and lymph circulation and reduce the risk of breast diseases and cancer.
- Pressing while rubbing the abdomen clockwise (the direction of stool movement in the colon) will help stimulate bowel movement.
- Regular scalp massage should help blood circulation and reduce gray hair.
- Going to bed at night with an empty stomach (while following this diet) will eventually cure sleep apnea (caused by the trachea's automatic constriction to prevent food reflux otherwise, while sleeping) and reduce the risk of obesity (caused by the body's secretion of abundant insulin to convert everything into fat otherwise). For the same reasons, babies should not be breastfed just before bed. If sleep becomes difficult at night due to hunger, a light snack of fresh fruits should help. Drinking alcohol before bed may also lead to sleep apnea and reduce blood oxygen levels (PO2), which may easily cause myocardial infarction or even death in those with arteriosclerosis or coronary artery stenosis.
- For the obese, drinking 1.5L/day of 20°C water will burn a significant amount of calories.
- The disruption of oxygen entering the blood (caused by toxic products in the intestines) can lead to menstrual cramps, headaches, back pain, stiff shoulders, and chronic fatigue. This diet will help detoxify the intestines and eliminate the symptoms.
- Salt, refined sweeteners (including sugar), and uric acid all cause erectile dysfunction. Alcohol, tea, and coffee hinder erection by constricting blood vessels. Diabetes also leads to erectile dysfunction in men and increases infertility in women. This diet will eliminate or reduce the above sources of erectile inhibition. Drink 500mL of water 1 hour before sex to hydrate the bladder, which will stimulate the prostate and improve erection.
- Excess cholesterol will increase the amount of male hormone Androgen (known as the fighting hormone, which darkens the skin and thickens hair) secreted by the adrenal gland, causing subcutaneous fat build-up under stress, acne, scalp dandruff, hair loss, and/or smelly armpits, foot soles, and/or skin. Fasting will help reduce and eventually eliminate the above symptoms, resulting in more beautiful and non-smelly skin.
- Cutting out all foods containing milk or dairy products will permanently cure common allergies in just a few weeks. Dairy consumption has also been linked to Crohn's disease, leukemia, osteoporosis, and diabetes.
- Drinking a glass of fresh lemon juice (diluted to taste with water and an allowable natural sweetener _ or even better without sweetener) 30-60 minutes before each meal (on an empty stomach) should gradually dissolve kidney stones.
- This diet will significantly improve and eventually cure all diseases related to metabolic syndrome, as well as many common aging symptoms such as urinary disorders, gastric reflux, blurred vision, and even snoring, while helping lose weight and significantly increase physical and mental health and endurance,

without the need for medications. It is worth noting that this wonderful health and quality of life is more affordable in terms of money, effort, and time than the world's common harmful lifestyle and diet today.

- Brush and floss your teeth immediately after eating and go for professional dental hygiene upon the appearance of dental calcium deposits or tartar. This will not only help protect your teeth, jawbones, and gums for life and avoid bad breath, receding gums, and tooth loss in old age, but also prevent many potential diseases caused by gum infection spreading to other organs in the body. Do not use your teeth to bite or break hard, brittle objects such as ice, crab
shells, nut shells, etc., which may permanently crack and damage the protective dental enamel layer.

17) Infants: Should only be breastfed, unless impossible. Unlike bottle-feeding, breastfeeding requires maximum use of all 16 muscles of the tongue and thus helps develop a wider mouth space and a more open airway, reducing the risk of mouth breathing and buck teeth later on. Mothers' diets and lifestyles during pregnancy and while breastfeeding will affect the development of their babies. After weaning, children should be immediately fed with adult foods (not pureed) to develop the chewing muscles, jaw, and airway, preventing obstructive sleep apnea, snoring, and hypoxia later on. (A small jaw will not have enough space to accommodate wisdom teeth and will thus require their extraction in due time, causing the jaw and airway in the mouth to collapse even more, increasing the risk of obstructive sleep apnea.) Vegan diets are always lacking in essential fats for infants, especially Omega-3 (both EPA and DHA).

RELEVANT HEALTH INDICATORS

- **Waistline** (Westerners): Optimal: Male < 100cm, Female < 88cm; Otherwise: Excess visceral fat, risks of heart disease, diabetes, cancer, etc.
- **Liver fat** (Safe if < 0,1Kg); **Muscle fat** (The less, the better)
- **Blood pressure**: To be measured on bed during sleep or upon getting up; Optimal < 120/80 mmHg; Normal High < 129/84; High blood pressure 1st stage < 139/89; High blood pressure 2nd stage > 140/90; High risk > 180/120
- **Fasting blood test:** HDL (Good Cholesterol), LDL (Bad Cholesterol), TG (Triglyceride), Hcy (Homocysteine), HbA1c (Hemoglobin A1c), Insulin, Glucose, CRP (C-Reactive Protein), UA (Uric Acid), Ca (Calcium)
  * HDL: > 60 - Very good cardiovascular health; < 40 (Male) / < 50 (Female) - Risk of cardiovascular disease.
  * LDL: < 100 - Small, dense LDL not high enough to cause harm; > 300 - Risk of rare genetic disease FH (Familial Hypercholesterolemia), need to eat less fat; 100 < LDL < 300 and TG > 150 - Risk of cardiovascular disease
  * TG: Normal < 150 mg/dL; High Normal 150–199; High 200–499; Very High > 500
    Small, dense LDL = TG / HDL
  * HbA1c: < 5.7% - Normal; 5.7-6.5% - Prediabetes; > 6.5% - Type-2 Diabetes
  * Glucose: > 90 - Sign of risk; > 100 mg/dl - Glucose intolerance; >126 mg/dl - Diabetes
  * Insulin (Indicates pancreas activity level): > 15 Microunit/ml - Severe Insulin Resistance.
    HOMA-IR = Glucose x Insulin / 405 (Diabetes risk index): < 2.8 - very good; = 4.3 - normal; > 4.3 - risk
  * UA: Optimal < 5.5mg/dL; Normal < 6.5; High Normal < 7.2; Alarm > 7.5
  * CRP (Body's Inflammation index): Ideal < 0.3mg/dL; Allowable < 0.5; Alarm > 1
  * Ca: 8.8-10.4 mg/dL - Normal

URIC-ACID REDUCING SUPPLEMENTS

- **Quercetin** (Prebiotic): Is a Flavonoid (flavor/pigment compound) belonging to the Polyphenol family with antioxidant, anti-inflammatory, immunoregulatory, and disease-preventing properties, helps control mitochondrial activities, inhibits the formation of harmful AGE compounds that age the body from inside out, inhibits the Xanthine Oxidase enzyme necessary for the production of Uric acid, reduces blood pressure,

and reduces blood LDL level. Found in cocoa, blueberries, red tomatoes, apples, berries, onions (purple onions, onions, chives ...), celery, broccoli, broccoli seeds/sprout, large leafy green vegetables, dill…

- **Luteolin** (Prebiotic): Is a Flavonoid belonging to the Polyphenol family with antioxidant, anti-inflammatory, cardiovascular, neuroprotective, and potential anti-cancer properties, inhibits the Xanthine Oxidase enzyme necessary for the production of Uric acid, and prevents Beta-cell dysfunction in the pancreas. Found in chrysanthemum, green peppers, celery, citrus fruits, broccoli, thyme, mint, rosemary, oregano...
- **DHA** (DocosaHexaenoic Acid): Is the best Omega-3 fatty acid to fight against Fructose, prevents metabolic dysfunction caused by Fructose, reduces inflammation throughout the body, including the brain and the intestines, and increases BDNF nutrients in the brain for new nerve cells. Found in fish oil, seaweed, eggs... 200-300mg/day required.
- **Vitamin C**: Is a powerful antioxidant necessary for growth, development, and repair of all tissues and helps heal wounds, absorb iron, maintain the immune system, control gout, and lower serum uric acid level (through increasing urinal excretion and renal reabsorption of uric acid). Abundant in citrus fruits.
- **Chlorella** (Platelet algae, a prebiotic): Is a single-celled freshwater algae having Uric-acid-reducing (especially Chlorella Vulgaris) and anti-inflammatory effects and helps reduce weight, blood sugar, C-reactive protein, and triglycerides, increase insulin sensitivity, improve liver enzymes and function, and treat depression (which is gradually being considered an inflammatory disorder). Is also known for supporting the body's detoxification process, binding heavy metals, pesticides, and other harmful compounds in the blood and removing them from the body.

RELEVANT MEDICAL INFORMATION

- **Signs of good health**: Include healthy skin, slim waist, and healthy liver and intestines. Body aging is a sign of poor health and evidence of visceral fat formation and metabolic syndrome.
- **5 essential nutrient types** (Requiring regular intake due to the body's inability to produce): (1) 9 essential amino acids; (2) Fiber (soluble and insoluble); (3) 2 essential fatty acids: lineoleic acid (Omega-6) and Alpha-Lineoleic acid (Omega-3, including EPA and DHA, which are produced by the body but never enough and must be further obtained from the diet); (4) Vitamins; (5) Minerals.
- **Enzymes**: Are Protein-based catalysts participating in all life activities, from thinking, breathing, heartbeat, immunity, to muscle movement. Works most effectively at 37-40°C body temperature. Abundance of enzymes means good health. This diet will ensure a stable and abundant supply of enzymes throughout the natural lifespan.
- **Uric Acid**: Comes from only 3 sources: fructose, alcohol, and animal purine (molecules containing C and N that give MSG its craved Umani taste and are found in DNA/RNA, tissues, red meat, organs, oily fish such as anchovies, sardines, herring, seafood, etc.). Activates fat production, which will lead to an increased waistline and a fatty liver even when not obese. Is a related indicator and a warning sign of all diseases related to metabolic syndrome. This diet will help maintain a safe and stable blood Uric acid level.
- **Survival gene group**: Is activated only when we are hungry, cold, or in Non-REM sleep mode to rejuvenate the body, prevent aging, and recover from illness. This diet will help activate the Survival gene group everyday to keep the body young, beautiful, and healthy throughout its natural lifespan.
- **Insulin**: Is a hormone whose main function is to store energy for later use. Is secreted by the pancreas when blood glucose levels increase to allow glucose to enter liver and fat cells, providing energy. (Cells of other organs do not need insulin to create access for glucose.) If the glucose supply is lacking and insulin is low, fat tissue will release stored fatty acids into the blood for the liver to convert into ketones before returning the latter to the blood for all cells to use without insulin. Too much insulin will disrupt blood vessel function and may cause cancer while increasing smooth muscle, thereby narrowing the coronary and renal arteries, leading to the risk of myocardial infarction and kidney failure. Normally, the hormones insulin and leptin work together to counterbalance the hormone ghrelin, thereby balancing body weight. Leptin is secreted by fat cells to signal the feeling of fullness to the brain. Ghrelin is secreted by the stomach to signal the feeling of hunger to the brain.

- **NO (Nitric Oxide)**: Naturally produced by the body, it dilates blood vessels, reduces blood pressure, increases blood circulation, makes it easier for Insulin to reach cells and allows Glucose to enter cells and create Glycogen (a storage form of Glucose). NO also participates in preventing the formation of Tau protein, an indicator of Alzheimer disease. Uric acid and salt both reduce NO, leading to Insulin resistance, high blood pressure, heart disease, diabetes, erectile dysfunction, and impaired neurotransmission (causing cognitive disorders).
- **Cholesterol**: Is essential for cell membrane structure and a precursor of steroid hormones. Can be produced by the body and is divided into 2 types: Good (HDL) and Bad (LDL). LDL is also divided into 2 types: Type A (Large Buoyant LDL particles) accounts for 80% and is neutral to cardiovascular problems (does not help create plaque in arteries); Type B (Small Dense LDL particles) accounts for only 20% but is an indicator of the risk of myocardial infarction. Therefore, the concentration of LDL in the blood is not an accurate indicator of metabolic syndrome. TG is much more harmful than LDL and is a good indicator of liver health. Both LDL-B and TG increase when consuming sugar and refined carbohydrates. LDL-A usually increases only when consuming fat. High TG and low HDL are signs of impaired blood fat (Lipoprotein) clearance. (Because lipids are insoluble in water, they need to be packaged into lipoproteins for transport in the aqueous medium of the blood.)
- **Glucose:** Is a simple sugar (monosaccharide) in the blood (commonly called blood glucose blood sugar), which is converted by mitochondria in cells into ATP energy through the Krebs process, releasing CO_2 gas and many toxic oxygen radicals that can damage or kill cells if not detoxified by Peroxisome organelles (containing many antioxidants in cells). The process of creating Glucose from fat is the most effective (2-3% TEF), followed by starch/sugar (6-8% TEF), and protein (25-30% TEF, the least effective). (TEF or Thermal Effectiveness Factor is the ratio of energy the body must spend to digest food, absorb nutrients and transport them to cells.) Excess glucose is stored in muscle and liver cells as Glycogen, or converted into fat (usually Triglyceride) and stored in fat cells. The body extracts glucose from fat or protein through the Gluconeogenesis process when needed. Glucose causes insulin resistance when continuously introduced into the blood, causing insulin levels to spike constantly, forcing cells to adapt by reducing sensitivity to insulin, causing the pancreas to pump in more and more insulin, leading to type-2 diabetes (Glucose unable to enter cells will accumulate in the blood and cause severe inflammation). Also, when Glucose or Fructose molecules are attached to proteins (in the form of amino acids) or to fats (at high temperature during frying, baking, or grilling), the glycolysis reaction creates stable glycation compounds AGE (Advanced Glycation End), which makes tissues and cells stiff and inflexible, causing inflammation and ageing throughout the body, leading to many chronic diseases (Western diets consume a lot of AGE). Although AGEs are constantly created from Glucose and Amino Acids always present in the blood and cells, they are also constantly prevented, detoxified, and eliminated by the body's natural defense system and kept at manageable levels by this diet. High blood glucose (no matter how mild or transient) will cause the following harmful effects: (1) Creates excess free radicals that reduces the amount of antioxidants in the body, leading to a state of oxidative imbalance, increased Uric Acid, and decreased NO; (2) Oxidizes free fats in fat cells, increasing inflammation; (3) Oxidizes LDL (Low-Density Lipoprotein or bad cholesterol), increasing the risk of plaque buildup in blood vessels; (4) Damages and disrupts the ATP energy production function in cells. Consistent high blood glucose levels may not be as bad as blood sugar swings (large fluctuations), which create free radicals that damage tissues, blood vessels, and the entire nervous system, causing inflammation to spread throughout the body. Diet, health, exercise, sleep, stress… all impact blood sugar.
- **Fructose**: Is the sweetest sugar among all natural carbohydrates and the number-1 killer of the 21st century, similar to cigarettes and margarine of the 20th century. It activates the body to increase Uric acid and store fat, leading to high blood fat, non-alcoholic fatty liver disease (NAFLD), high blood pressure, impaired glucose tolerance and metabolism, obesity, insulin resistance, diabetes, gout, metabolic syndrome, etc. Natural fructose in plant sources such as fruits, honey, agave nectar, and vegetables (such as broccoli, artichokes, asparagus, okra, etc.) is safe and does not increase Uric acid thanks to its low content, slow absorption, and other adjacent substances that have the effect of compensating or counteracting the increase

in Uric acid and of stimulating excretion, such as Potassium, Flavonoids, fiber, Vitamin C... Processed fructose sources such as Sucrose, Dextrose, refined sugar, High-Fructose Corn Syrup (HFCS, the sweetest and cheapest of refined sugars), canned fruit juices, etc., all increase Uric Acid and are very harmful. Fructose participates in the energy storage process and is converted into Glucose by the Fructokinase enzyme in the liver, depleting ATP and increasing Uric acid uncontrollably (causing harms at the cellular level), forcing the body to immediately switch to energy storage mode and create more and more fat (especially liver fat) through the Lipogenesis process. Fructose stimulates the taste buds as well as activates hunger signals, making us crave food and drink indiscriminately even though we don't really need more energy. This indirectly increases insulin resistance (due to excessively high blood glucose), causing inflammation, mental illness, cognitive decline (including ADHD or Attention Deficit HyperActivity Disorder), heart disease, and Alzheimer disease (which tends to be considered type-3 diabetes, through which Insulin - a substance that nourishes and stimulates nerve cells - is disrupted, leading to insulin resistance that forms harmful protein plaques instead of normal nerve cells in the brain). Sucrose, a double sugar (disaccharide) found in sugar cane and sugar beets, is broken down in the small intestine by the Sucrase enzyme into Fructose and Glucose (simple sugars). The conversion of Fructose to Glucose (occurs mainly in the liver, sometimes in the brain) depletes NO and causes brain inflammation, leading to suicidal thoughts, cancer, stroke, infertility, chronic liver and kidney disease, erectile dysfunction, avoidable blindness, and other diseases related to Uric acid.

- **Salt**: Is already adequately available in natural animals/plants and needs not be added to food. Excess salt is absorbed first into the blood stream and increases its osmotic pressure, causing water to be continuously absorbed from other parts of the body and increase blood pressure. Increased blood pressure causes blood cells to collide more with the blood vessel walls, leading to damaged blood cells and gradual hardening of the blood vessel walls, which in turn causes poor blood circulation, faster heart beats, and even higher blood pressure (vicious cycle). The maximum allowable daily salt intake for adults is 10g for men, 8g for women, and 6g for those with high blood pressure.
- **Calcium**: Is already adequately available in natural animals/plants and needs not be supplemented to the daily diet. What is needed is to frequently walk, carry weight, and chew foods thoroughly to stimulate bones and teeth to absorb calcium. When blood calcium decreases, calcium will be drawn from bones and teeth to compensate. Moderate exercise, 10-15 minutes' exposure to mild morning sunlight, combined with this diet will replenish calcium for them.
- **Free Radicals**: Are atoms or molecules that have lost a negative electron in their outer shells, become imbalanced in electrical charge, and thus tend to steal negative electrons from other molecules, continuously forming new chains of free radicals and rendering cells unstable and unable to function normally. Superoxide, Lipid Peroxide, Ozone, Hydrogen Peroxide, Hydroxyl... are among very dangerous free radicals, some of which may destroy cells' membrane, as well as DNA. Free radicals can be internally produced from metabolic processes, such as that of converting fat into energy, which produces Ketone, an extremely strong oxidant that is often excreted through urine, sweat, or even respiration if not too much. Excess Ketone in the body will increase blood acidity, leading to the very dangerous "Ketone Acidosis" disease. Free radicals are also produced by external factors such as alcohol, tobacco, fatty foods, sugar, salt, food additives, tea, coffee, toxins in cosmetics, injuries, infections, stress, overwork, lack of sleep, staying up late, environment (dust, UV rays in sunlight, chemicals, radiation, X-rays, electromagnetic waves…), etc. A limited amount of harmful free radicals also plays an indispensable role in eliminating bacteria, viruses, and molds that invade the body. The body is also equipped with powerful antioxidant enzymes such as Catalase, SOD (Super-Oxide Dismutase, which normally decreases sharply after the age of 40), Glutathione Reductase, Glutathione Peroxidase, etc., and non-enzymatic antioxidants such as Vitamins A, E, C, coenzyme Q10, betacarotene, selenium, etc. to neutralize free radicals. Free radicals are the biggest enzyme consumers. Oxidative radicals are free radicals that contain oxygen (such as Superoxide O_2^-, Hydroxyl HO^-). Oxygen radicals are oxidative radicals in which oxygen is an electron-deficient atom.
- **Cells**: The body has about 60 trillion cells, which are continuously replaced (recycled or rejuvenated) thanks to the food supply absorbed by the digestive system every day. About 50-70 billion cells die in

adults every day. Cells combine the following 3 systems to protect themselves and life: (1) Lysosomal (Processes & recycles waste); (2) Intracellular immune system; and (3) Autophagy. If systems (1) and (2) are ineffective, cells will self-destruct to protect the life of other healthy cells. What prevents cancer cells to self-destruct is the presence of large amounts of free radicals and oxidants in the body, arising from today's unnatural and unhealthy diets and lifestyles. Caspase is an important enzyme for cell autophagy.

- **Carbohydrate** (**Glucid**): There are 3 forms: (1) Simple sugars (Monosaccharides): Such as Glucose, Fructose, Galactose, and HFCS (high fructose corn syrup, mixed with unbonded Glucose); (2) Double sugars (Disaccharides): Such as Sucrose (fruit sugar, a Glucose-Fructose), Maltose (brewer's sugar, a Glucose-Glucose), and Lactose (milk sugar, a Glucose-Galactose); (3) Starch: Polymerized Glucose chains. Only simple sugars and double sugars cause sudden increases in blood Glucose (because they are digested and absorbed quickly in the duodenum, causing sudden increases in Insulin, inflammation, and mortality) and tooth decay (because they are quickly metabolized or fermented by oral bacteria). (Streptococcus Mutans, the tooth-decaying champion bacteria, can break the Glucose-Fructose bond in sugar in 1 nanosecond. The Sodium Fluoride compound in toothpaste can prevent tooth decay at a concentration of just 0.1 parts per million.) Although Fructose does not increase blood Glucose, it is the most serious cause of Insulin resistance in the liver and metabolic syndrome. As starch has more bonds to be broken, it not only cannot be fermented in the mouth but also protects teeth by creating a layer of plaque around them. There are 2 types of starch: (1) Amyloses: Found in beans, has a 2-end Glucose chain structure and is digested and absorbed slowly; (2) Amylopectin: Found in cereals, has a multi-branched Glucose chain structure and is digested and absorbed quickly. In general, consuming natural carbohydrates (containing fiber, bran, and germ, but no added sugar) will help maintain low Insulin levels. Dehusked cereals have 3 parts: (1) Bran: Is the outermost layer (containing soluble and insoluble fiber) enclosing the germ and the starch grain; (2) Germ (magic pocket): Located at the end of the starch grain, near the stem, can germinate into a plant, contains Protein, polyphenol, flavonoids, vitamins, GABA, antioxidants, and many other trace elements (such as amines, purines, phenolic acids...), but is easily oxidized into Quinone, which is no longer nutritious and has a terrible taste; (3) Starch grain: Can be preserved almost forever if separated from the bran and germ (to become a nutrient-poor processed food).

- **8 intracellular processes**: Are always dependent on nutrition and also interdependent. Will help optimize health and prolong life if occurring properly. Otherwise, will cause chronic metabolic diseases and reduce life span.

1) Glycation (or Maillard/Browning/Caramelization) reaction: This is a fundamental reaction of the aging process, occurring constantly and naturally in all living cells without the need for energy, nutrients, or enzymes, and is the main cause of death. It will occur if Fructose, Glucose, Galactose comes into contact with amino acids (proteins), damaging the proteins (causing it to turn brown and become less flexible). It also occurs if Glucose/Fructose/Galactose comes into contact with fat under high temperatures during frying, sautéing, stir-frying, or baking. If it occurs faster than the rate of waste removal in the cells, Advanced Glycation End (AGE) products will build up and gradually disrupt the function of cells, organs, and the whole body, leading to wrinkled skin, cataracts, diabetes (if occurred in the pancreas or liver), etc. Glycation with Fructose creates 100 times more oxygen radicals and is 7 times faster than with Glucose (With Methylglyoxal, a breakdown product from Fructose, it is 250 times faster). Fructose is a super-aging substance compared to Glucose or starch.

2) Oxidative stress: Occurs when the number of oxygen radicals exceeds the detoxification capacity of the peroxisome organelle in the cell. The darker the color of natural foods, the more antioxidants they contain that we cannot create ourselves, which will help reduce this stress. The brain is completely dependent on oxygen and will stop functioning after just 4 minutes of oxygen deprivation while the rest of the body may still continue to live (especially cancer cells, which grow very quickly without oxygen).

3) Mitochondrial dysfunction: Mitochondria are ATP energy factories in cells. New, healthy mitochondria will completely burn glucose and ketones and produce few oxygen radicals. Mitochondria will be inhibited by uric acid, low folate (natural vitamin B9) level, and fructose, causing energy to be diverted to the production of triglycerides. High uric acid and high Hcy (Hcy or Homocysteine is an amino acid formed

during the metabolism of Methionine essential amino acid) are signs of weakened mitochondria. Excess glucose input will overload the mitochondria and create fat instead of ATP, causing the liver to become fatty and insulin resistant (if occurred in the liver), and the pancreas to become fatty and insulin deficient (if in the pancreas). Fructose in processed food will create twice as much liver fat as Glucose. Consuming the most energy, the brain and endocrine glands are the organs that depend on mitochondria the most. Due to oxidative stress, mitochondria is weakened and damaged over time and will need to be replaced. The weaker the mitochondria, the sooner we die. Moderate physical activity is the most effective way to stimulate the production of new mitochondria.

4) Insulin Resistance: Occurs when cells no longer respond to insulin signals due to continuous increase in blood glucose (leading to diabetes), causing cells to starve (leading to organ dysfunction), Leptin to be blocked (Leptin resistance), and Ghrelin to take over (causing uncontrollable hunger and food intake). Insulin resistance allso inhibits the kidney's ability to excrete salt (causing high blood pressure) and is the central problem of metabolic syndrome. Reducing Insulin (through reducing consumption of processed food) is the only way to neutralize Insulin resistance.

5) Cell membrane integrity: Cell membranes are made up of two lipid layers sandwiching a protein layer in between and can be damaged by the following two mechanisms: (1) Lipids are damaged by toxins or oxidative stress; (2) The lipid layer is no longer flexible. When the cell membrane is damaged, the substances inside leak out, causing cell dysfunction and death. The subsequent cleaning process (such as that of macrophages) causes even more damage (such as releasing toxic cytokines that directly affect other cells or functions). There are 7 types of fat in food, all of which affect cell membranes. Saturated fats have no double bonds and can thus be easily stacked into lipid blocks (which reduce cell membrane flexibility) but do not run the risk of turning into Trans fat at high temperatures. Unsaturated fats have Cis double bonds that prevent stacking but are also easily broken by toxins and oxidative stress and transformed into extremely toxic Trans bonds at high temperatures (smoke point). Therefore, at high temperatures, saturated fats are safer for health than unsaturated ones.

6) Inflammation: Is an innate immune mechanism of tissues against harmful stimuli (such as microorganisms, chemical and physical agents, damaged cells, etc.) to eliminate the stimuli, clean up dead cells, and restore the tissues. Inflammation has the effect of dilating blood vessels, increasing circulation, and creating conditions for white blood cells to gather and penetrate the blood vessel walls to destroy foreign substances, leading to 5 signs including pain, redness, swelling, heat/fever, and dysfunction. However, inflammation also causes the following 4 harmful effects to the body: (1) Killing normal tissues, causing long-term damage after destroying the invader (E.g.: Kidney disease after E. Coli infection; Coronary artery aneurysm after Kawasaki disease; Long-term complications after COVID-19...); (2) Immunity against normal tissues due to molecular similarity between the invaders and the tissues (e.g., rheumatism, kidney disease, and even mental illness after streptococcal infection); (3) Causes leaky gut, allowing toxins and harmful bacteria to penetrate the intestinal wall into the blood, causing insulin resistance in the liver, food allergies, and autoimmune diseases; (4) Body fat can release Palmitate lipids that cause inflammation, especially in the liver in cases of excess sugar. Nutrition, metabolism, inflammation, and immunity are four closely interrelated factors; if one fails, so will the other three. Inflammation also causes the adrenal glands to increase the secretion of Cortisol hormone, which reduces inflammation and triggers damaged tissues to produce allergy-causing Histamine amino acid. Inflammation is always a systemic reaction despite its usual manifestation through local signs.

7) Epigenetics: Only 15% of chronic metabolic diseases are genetic in origin. The rest are due to the environment, which can also change genes through epigenetic mechanisms, which may turn genes on and off inappropriately to modify responses to diseases, leading to the risk of developing many other diseases. Nutrition has the ability to regulate epigenetic phenomena.

8) Autophagy: Is the process of removing old organelles (especially mitochondria), damaged proteins, and biological waste from cells to optimize health and slow down the aging process, especially in the brain, which uses the most energy and always contains a lot of mitochondria, oxygen radicals, and accordingly, a lot of damage. Omega-3 fatty acids, though very necessary for brain health, is also easily decomposable,

producing a lot of waste that needs to be cleaned up. Having no room to store waste, the brain cleans and throws out trash every night during sleep. Fasting will help reduce Insulin and increase Ketone, 2 factors that contribute to promoting autophagy.

- **DNA and Genes**: DNA records the evolutionary history of life. This history is repeated during gestation, the process of eggs developing into embryos and then complete organisms. A gene is a specific segment of the DNA sequence, containing information to create a specific type of protein or RNA molecule (RNA is the single-stranded version of double-stranded DNA, containing the Nucleotide U instead of T, and the sugar Ribose instead of Deoxyribose). Each gene can be turned on/off depending on the function of the cell in the tissue or organ. The on/off state of a gene is not necessarily fixed throughout life but can change depending on the environment and the individual's ability or needs (even this change requires enzymes). The human genome has about 3 billion DNA molecules (i.e. 3 billion A-T and C-G nucleobase pairs, with infinite arrangements), constituting about 20,000-25,000 protein-producing genes, as well as many other pseudogenes and non-functional RNAs.
- **Liver**: Processes and stores nutrients and energy before releasing them back into the blood, supports immunity, secretes bile to aid digestion and fat absorption, breaks down toxins in the blood, and sends the residue down to the kidneys through blood vessels to be excreted in the urine or to the intestines through the bile duct to be excreted in the stool. Breaks down excess alcohol (not fully absorbed in the stomach) into Acetaldehyde (a powerful poison to the body) before gradually breaking it down into vinegar and then into water and CO_2 (This process also continues to generate many free radicals). As long as Acetaldehyde is not completely broken down in the blood, the body will be in a state of "intoxication", possibly accompanied by headaches and nausea if too much, due to its toxicity. A healthy liver only contains about 3-5% of the fat being processed. Fatty liver contains over 30% fat. Only 20% of blood glucose enters the liver (via insulin signal) to be stored as glycogen, while 100% of fructose and galactose in the blood enters the liver (without insulin) to be converted into glucose energy, causing loss of phosphate (in ATP), producing uric acid, reducing NO (leading to high blood pressure), and overloading mitochondria, which creates liver fat from excess energy, causing insulin resistance. Signs of fatty liver include high insulin and high ALT (ALanine aminoTransferase is an enzyme released into the blood by the liver when damaged, so it is used in blood tests to assess liver health). High LDL but normal TG and insulin are signs of liver fat clearance failure (i.e. the liver cannot effectively eliminate excess fat, leading to fat accumulation in the liver).
- **Blood fat** (**Lipid**): Consists of 2 main types: (1) Cholesterol: Including HDL (good) and LDL (bad); (2) Triglyceride (or TG, neutral fat): High TG levels in the blood can lead to the risk of cardiovascular diseases such as atherosclerosis, myocardial infarction, and stroke; TG is also the main component of visceral fat (to be burned first) and subcutaneous fat (to be stored for longer-term use), accounting for 95% of total body fat. Most TG in the body is synthesized by liver and intestinal cells. Excess TG in the blood will be stored in adipose tissue.
- **Skin**: Has 3 layers (outside in): Epidermis, dermis, and hypodermis. The outermost part of the epidermis is a horny layer about 0.02mm thick that retains moisture and blocks foreign microorganisms or substances. Just scratching with a fingernail can break the horny layer, allowing bacteria to enter and causing inflammation. Excessive skin scrubbing may also cause inflammation (redness) or hyperpigmentation (dark spots). All skin whitening cosmetics contain chemicals that exfoliate the horny layer and stimulate the growth of a new one, giving the skin an immediate new, young, and beautiful look while reducing its ability to retain moisture and block foreign substances and ultraviolet rays, making it much more susceptible to melasma and dark spots than before.
- **Intestinal tract**: Has very little oxygen in it. 99% of intestinal bacteria do not need oxygen (anaerobic). Like cancer cells, they proliferate (divide and multiply) by creating raw materials on the spot without taking in new raw materials, nor burning (which requires oxygen), creating, or eliminating anything (no need to clean up) and produce a lot of lactic acid (good) from the process of metabolizing Glucose without oxygen. Intestinal bacteria metabolize 25% of the food consumed (including fiber). Though not contributing calories to the body, they help improve the total amount of calories absorbed into the body. While the stomach environment is strongly acidic, the intestinal one is weakly alkaline, thanks to pancreatic juice (strong

alkaline) secreted by the pancreas in the duodenum (first part of the small intestine) and mixed with food. The functions of the intestine include transport, digestion (breaking down protein into amino acids, carbohydrates into glucose, and fats into fatty acids and glycerol), absorption of nutrients (introducing them into the blood), immunity, and control of the amount of water in the body (the large intestine absorbs salt, water, and through beneficial bacteria produces vitamins from waste). The intestine contains hundreds of trillions of microorganisms divided into about 300 types, including beneficial bacteria (about 20%, such as Bifidus), harmful bacteria (about 30%, such as Clostridium), and opportunistic bacteria (or intermediate bacteria, about 50%), which will follow the dominant bacteria to decide whether the digestive process is good or bad. The only way to prevent intermediate bacteria from becoming harmful bacteria is to eat fermented foods (which also contain abundant enzymes). Fermented bacteria have both effects of supplementing nutrition and preserving (preventing the growth of other microorganisms), making food more delicious and easier to digest. Intestinal microorganisms produce about 3,000 types of enzymes. Beneficial bacteria produce antioxidant enzymes to neutralize free radicals. Harmful bacteria produce oxidants, which break down indigestible food through an abnormal fermentation process that generates toxic gases to stimulate the intestines to excrete toxic gases and feces. (Therefore, both beneficial and harmful bacteria are indispensable.) About 60% of the body's white blood cells live in the intestines, producing large amounts of free radicals when fighting bacteria, viruses, or cancer cells. Lactic bacteria in the intestines will eliminate these free radicals. The intestines function independently of the brain (without instructions from the brain), so they are often called the "second brain". The intestines are controlled by the parasympathetic nervous system (not the brain) and thus operate more effectively when sleeping and relaxing.

- **Excretion**: The body's toxins are excreted through feces, urine, and sweat. Urine contains about 2% Urea (the kidneys' blood filtering residue) and small amounts of chlorine, sodium, calcium, magnesium, phosphoric acid, creatinine, uric acid, ammonia, hormones, etc. Sweat (secreted from sweat glands) contains salt and has a composition similar to urine but at a much lower concentration. Sweat mainly regulates body temperature but is also the only way to excrete heavy metals accumulated in the body. Toxins in the system are transferred to the liver for detoxification and then to the kidneys (through the blood) or to the intestines (through the bile duct) for excretion. Food takes about 24 hours (48 hours if constipated, which is very harmful) to pass through the body.
- **Metabolic syndrome** (MS): Only 15% of chronic metabolic diseases are genetic in origin. The rest are due to the environment. Only 80% of obese people have MS. The remaining 20% are completely metabolically healthy (MHO) with most of the fat stored in the right place, that is in the adipose tissue under the skin, buttocks and abdomen as fat, and in the liver and muscle tissue as glycogen. Fat stored in the liver, muscle, visceral tissue or any other tissue will cause dysfunction of that tissue and lead to MS. Liver fat alone is the best predictor of the risk of diabetes. Fatty liver will lead to fatty pancreas, which will not produce enough insulin for the body. All chronic non-communicable diseases related to MS are caused by abnormal metabolism (burning of energy) in various cells of the body's organs and only started in the 1970s, when processed foods became popular. The rate of depression and schizophrenia increased by 20% in just 1 decade. Metabolic diseases (such as diabetes and visceral fat) is directly related to the efficiency of mitochondria in daily life and is always accompanied by chronic inflammation in the early stages. If an additional disease (such as COVID-19) is contracted, it will create a tsunami of inflammatory response and activate the most powerful inflammatory protein, Cytokine (It is Cytokine, not COVID-19, that kills the body). Fiber will prevent leaky gut and the activation of Cytokine. MS currently accounts for 75% of total health care costs, the main cause of which is sugar and processed food.
- **Cancer**: A tumor is a part of an organ where the number of cells increases abnormally and hardens into a mass. It is benign if it develops into a size less than 1 cm in diameter and does not spread to other areas. Otherwise, it is malignant or cancerous. Cancer is not a disease that causes local damage but one that invades the whole body. Toxins accumulated in the body through unhealthy daily habits will stick to cells throughout the body like time bombs. Among those countless bombs, which one explodes first depends on the genetic factors and living habits of the individual. For example: Cells making up the liver, the body's detoxification organ, will be at higher risk of developing into tumors from the habit of consuming alcohol or

pesticides; Similarly, the stomach, from drinking tea or taking stomach medicine; the lung, from cigarettes; and the colon, from meat. Enzymes can help enhance the body's immune system to inhibit cancer cells unless depleted (as in the final stage of cancer), when full recovery becomes much more difficult.

- **Diabetes**: There are 2 types: Type 1 is an autoimmune disease of the pancreas that mostly develops early in children, causing lack of Insulin; Type 2 mostly develops in adults, causing Insulin resistance and often leading to the risk of retinopathy, peripheral neuropathy, and kidney disease. Signs of diabetes include high HbA1c in blood tests.
- **Food allergies**: Protein is broken down into amino acids in the intestine before being absorbed into the blood. In the case of leaky gut, a certain protein can go straight to the blood before being broken down into amino acids, triggering an immune response that causes white blood cells to release Histamine. Once white blood cells attack a target, they will attack it forever, leading to food allergies.
- **Blood pressure**: Should be measured in bed during sleep (using an ABPM monitor) or upon getting up, when the sympathetic nervous system is at its minimum activity (to avoid the "White Coat Hypertension" phenomenon). There are 2 measurements: Systolic (first number) measures the blood pressure on the artery walls when the heart beats; Diastolic (second number), does when the heart rests between beats. High blood pressure is currently the number-1 cause of death globally. A 5-point increase in blood pressure = 10% increase in risk of death. Sugar inhibits the kidney's ability to excrete salt and increases blood pressure more than salt. Only under a slim waist is high blood pressure caused by salt or stress.
- **Sleep**: Is the body's largest metabolic activity. Helps control hunger, food intake, metabolic rate, body weight, immunity, and uric acid level. Helps us be creative, gain insight, make good decisions, cope with stress, process information, learn fast, and organize, store, and remember memories effectively. Adults who sleep 7-8 hours/day have the lowest mortality rate (ideal). Sleeplessness will cause inflammation, cardiovascular disease, cancer, sexual dysfunction, and depression, reduce hormones, immunity, and glucose regulation (causing obesity, insulin resistance, metabolic syndrome, diabetes, etc.), destroy healthy metabolism (causing memory loss, brain fog, confusion, dementia, Alzheimer disease, etc.), and reduce life expectancy. Sleeping too much also triggers an increase in inflammatory substances, shrinks brain volume, and increases the risk of dementia. Sleep is a continuous series of approximate-90-minute cycles of alternate non-REM (deep) and REM (Rapid-Eye-Movement) sleep. Non-REM sleep mainly helps the body recover and refresh (rejuvenate) while activating the Glymphatic system (washing and rinsing) to help the brain remove waste (including beta-amyloid protein related to Alzheimer disease) and transport nutrients. REM sleep mainly helps consolidate memory. The supporting muscles with soft tissue in the throat such as the tongue and palate will relax maximally and narrow down the airway during sleep, causing Obstructive Sleep Apnea (OSA) in obese people (as a result of the heavy neck pressing down and blocking the airway), which indirectly raises the risk of dementia. 7-9 hours of sleep is essential every night. The hormone Melatonin causes sleepiness while Serotonin initiates sleep. Lack of Vitamin D and Magnesium may cause insomnia. Tryptophan (1 of the 9 essential amino acids, found in cheese, egg, and nuts, especially almonds), promotes natural sleep.

TOXINS AND HEAVY METALS

- The larger the fish and seafood, the more Methyl Mercury it would contain.
- PCBs (Polychlorinated Biphenyls) and Dioxins are concentrated in animal fats.
- Heavy metals are concentrated in plants, inhibiting photosynthesis.
- Corn-fed beef contains marble-patterned fat and causes excess Omega-6 (triggering Inflammation) and excess Valine, Leucine, and Isoleucine essential branched-chain amino acids (leading to fatty liver). Pasture-fed beef has a uniform texture and color (pink) and contains less branched-chain amino acids and Omega-6 fats (better).
- Free-range eggs are healthier and have darker yolks than factory-farmed ones.
- The ideal Omega-3:Omega-6 ratio is 1:1. Excess Omega-6 will cause inflammation (all corn-fed animals/seafood are loaded with Omega-6 fats and branched-chain amino acids).
- Olive oil (190°C boiling point) has the lowest smoke point (160°C) among unsaturated fats, beyond

which, healthy fats (with Cis double bonds) will easily turn into extremely toxic Trans fats (with Trans double bonds). As saturated fats cannot turn into Trans fats (thanks to their lack of double bonds), they are safer for health at high temperatures.

- PAH (Polycyclic Aromatic Hydrocarbons), entering the body through inhaling vehicle exhaust, tire wear-and-tear dust, or charcoal smoke, or through eating grilled or smoked meat, will bind with DNA radicals to create oxygen radicals, potentially causing DNA mutations and cancer.
- Glycation reactions occur naturally in the body and food when carbohydrates come into contact with protein (or with fat at high temperatures during frying, sautéing, grilling, processing, or sterilizing food), creating AGE products that cause aging and potentially cancer.
- 3-MCPD (3-monochloropropandiol fatty acid ester), created when free fatty acids (in fat) come into contact with chlorine ions (in salt) at frying temperatures above 204°C, is extremely toxic to the kidneys and testicles, and can harm the liver and many other organs.
- Glyphosate herbicides pollute all crops, inhibit the conversion of carbohydrates into amino acids in plants, affect the intestinal microflora in humans (which can cause leaky gut and inflammation), can change the methylation reaction (causing epigenetic changes and obesity in offspring), and can cause cancer.
- Atrazine (or Buctril) herbicide inhibits photosynthesis, causes birth defects, mitochondrial disorders, insulin resistance, and methylation reactions, and has caused epigenetic effects in animals.
- The butter flavoring agent Diacetyl in toffee and popcorn, if inhaled, is easily decomposed into Acetaldehyde, a liver and lung toxin that can cause obstructive bronchiolitis, leaving permanent scarring in the airways.
- Potassium Bromate, a substance that increases the firmness of bread and cookies, is also a carcinogen.
- As most "natural flavors" are non-polar compounds, they are often mixed with a polar compound (to dissolve fat with water), such as Polysorbate 80 (emulsifier), Propylene Glycol (Solvent), BHA or Butylated HydroxyAnisole (preservative)..., all of which are harmful to health.
- Emulsifiers such as Lecithin (in chocolate), Polysorbate 80 (in shortening), Carageenan (in ice cream), Carboxymethylcellulose (in salad dressing)... are all detergents that can peel the Mucin layer (protecting the intestinal epithelium from bacteria) off the intestinal wall, causing the risk of intestinal diseases, leaky gut, or food allergies.
- Growth hormones used in livestock cause the risk of breast and prostate cancer in adults and early breast development in children.
- BPA (BisPhenolA), an ingredient in plastic or nylon food containers that also has an indirect preservative effect, has been found to be related to obesity and insulin resistance.
- Paraben preservatives used in cosmetics and foods (such as cornflakes, muffins...) can change epigenetics and reduce fertility in women.
- Preservatives BHA (Butylated HydroxyAnisole) and BHT (Butylated HydroxyToluene), commonly used in potato chips, processed cereals, meats, etc., have been officially listed as carcinogenic to humans.
- Preservative Propyl Gallate, used in fatty foods such as sausages, vegetable oils, soup broths, chewing gum, etc., has been linked to Parkinson's disease in mice.
- Preservatives Nitrate/Nitrite used in processed meats such as bacon, sausages, etc., have a high risk of causing stomach and intestinal cancer.

COMMON FOOD PRESERVATIVES

	Preservative	Foods found in	Preservative	Foods found in
	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
ANTI	Calcium Lactate	Olives, cheeses, frozen desserts	Sodium benzoate	Fruit products, acidic foods, margarine
MICR	Calcium Propionate	Breads & other baked goods	Sodium diacetate	Baked goods
OBIA	Calcium Sorbate	Cheeses, syrups, mayonnaise, margarine	Sodium erythorbate	Cured meats
LS	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
ANTI	Ascorbic acid (Vit. C)	Fruit products, acidic foods	EDTA (ethylenediamine tetraacetic acid)	Dressings, margarine, canned vegetables
OXID	BHA (butylated hydroxyanisole)	Bakery products, cereals, fats, oils	Propyl gallate	Cereals, snacks, pastries
ANTS	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

B. 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 releasing acids that soften and gradually break down even the tough enamel. Tooth brushing must be done from the root to the top (not the opposite direction) to avoid any inadvertent damage to the gum seal, which may expose the vulnerable, lower part 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 released 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 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.