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Aging

To think about our aging is to be able to accept our hard times in life. These past decades, the science of aging has developed rapidly. It is revealed that keeping young involves both aspects of appearance and internal body organs. Aging is avoidable and it is possible to turn back time to some degree. Healthy human life expectancy which people live without special health care or disease is average 70 years old. The Sardinia island in Italy is famous about longevity: people who are over 100 years old, they walk around, play the instrument and play chess. Scientists have studied healthy long life from this island's elderly for a long time. In the same time, biology science has developed for explaining how are we aging. There are no specific special medical supplements or longevity miracle foods. Anti-aging system is already programmed in our body.

Through the internet and books, we can find many anti-aging methods; such as diet, skin care, sleep, relaxation and so on. We are longing for anti-aging for reasons of being healthy, being young in appearance and thinking clear. What is aging? Since cell division has started in mother's womb, our cells have automatically worked regardless of our thoughts. The cells are programmed by our inherited genes, the cells are destroyed and copied for protecting the body functions and improvement as needed. Also, this processing has limitation for cells divisions, example, skin cell could divide for 60 times in its life. It is said that the human cells live for 120 years. Is aging a disease? "It is time to classify biological aging as a disease.", the World Health Organization (WHO) added an extension code of the International Classification of Diseases in 2018. (13) "Aging is a disease, and that disease is treatable." "Theoretically, human-being is able to live forever", according to Dr. David Sinclair who is a biologist, professor of genetics and co-Director for the Biology of Aging at Harvard Medical School. (2) He says "aging is a loss of genetic information". It is the DNA, as known. DNA contains information inherited from parents. Aging had been considered that the DNA was damaged by exterior stressors such as, UV-ray, X-ray, free radical and so on. However, "mice experiences did not show this." DNA is very tough and has survived for 4 billion years. DNA itself is not easy to get damaged. He explained the genetic errors are caused by "epigenetics". Epigenetics has or involves several parts roles for genetic information. It exists for maintenance and ordering to DNA genetic codes of proteins. It is the study of heritable phenotype changes that do not involve alterations in the DNA sequence. It is embryonic development, gene switch networks, and chemical modification of DNA- packaging proteins as well. When DNA packing proteins are damaged many places in our body at the same time, epigenetic become hands full, too busy to do other jobs of order DNA proteins, embryonic development or gene switch networks. Therefore, epigenetic cannot order the protein synthesis smoothly. It leads to appear the errors, we could see in the skin or organs. Epigenetic should have ordered "make moisten fresh skin" instead of "hairy dry skin". This is the aging mechanism inside of our cell body. DNA still has information of "20 years young skin" even at 80 years old. When epigenetic repairs the DNA- packaging proteins in order to make young skin or develop organ cells, it is possible to return 80 years old skin to 20 years old young skin. DNA does not deteriorate, which is proven by Clone technology. Anti-aging is high repairment execution performance. And, it has been proven in critical trials.

As a scientific fact, aging is a major cause of disease. Our body is getting fragile and achy with years. Even we would have lived longer, we do not want live with any suffering from physical matters. The human life expectancy averages are longer every year in the world equally. In the background, the medical development is rapidly preventing or treating diseases. Longevity is desired by human-beings.

But we hope that it must be with healthy long living, in mentally and physically. According to statistics, the period which need special care or any health problems, limitation of living life is average 9 to 12 years before reaching to human life expectancy. (14) Dr. Sinclair says even if we could stop all cardiovascular diseases or cancer, the life extension would be only 1.5 to 2.1 years because of other course of disease are still increasing exponentially. (2) Additionally, senility, which is the physical and mental decline associated with old age, especially the deterioration of cognitive functioning associated with old age, is the one of top 10 causing of death.

Aging is the risk factor for heart disease, cancer, arthritis, Alzheimer's, kidney disease and diabetes. Also, most of them have undiagnosed diseases of hypertension, ischemic heart disease, atrial fibrillation and dementia. The 19-century concept of 'senility,' meaning cognitive changes occurring after the age of 65 years and considered to be part of normal aging. However, currently, WHO defines "dementia is a not normal part of aging." CDC (Centers for Disease Control and Prevention) also says "Dementia, or severe memory loss that interferes with daily life, is not part of the normal aging process." There is eye condition related only to aging, which is glaucoma, eyesight narrowing conditions due to optic nerve damage and progressive disease leading causes of blindness for people over the age of 60. The modern medical research show eye overuse or abnormally high pressure does not cause glaucoma; they are only risk factors. If we have the condition, we'll generally need treatment for the rest of our life. (7) Aging results in physical decline and it limits the quality of life. Anti-aging has a big role in preventing aging related disease and indeed extension for quality of our life.

In Traditional Chinese Medicine (TCM) point of view for aging, ancient medical textbook of Huang Di Nei Jing explained about human's aging using magic number of 7 for female and 8 for male. This means female age multiple 7, such as years of 7, 14, 21, 28, 35, 42, 49, which considered conceive possibility, same as male that multiples 8. These calculations follow the decreasing "Kidney essence" which are inherited from parents such as "constitution "or "gene". Ancient Chinese Medical doctors knew around 2000 years ago, some people even though they are quite elderly (female 49 male 64) can still conceive. This is because these individuals inherited an unusual abundance of Kidney essence which is strong constitution or gene. And, they lead their lives properly and protect their vitality which is good Qi (energy of life) and Blood in Chinese medicine. (4) To maintain them, TCM doctors have advised people "balance" which is explained in Yin and Yang. The material energy, which this universe has created itself out of, is also referred to as qi. It is believed that the organization of qi in this cosmology of Yin and Yang has formed many things. Included among these forms are humans. Many natural dualities are thought of as physical manifestations of the duality symbolized by yin and yang. Interestingly, according to this theory and thousands of years of experiments, TCM practitioners' approach "aging" with Chinese herbs, massage and acupuncture. Cosmetic acupuncture, tiny needles on face leading to beauty is the popular for highly conscious women. Also, they have treated the aging related discomforts such as, thin hair, low libido, menopause disorders. Acupuncture treatments give needle puncture stimulating in skin, muscle and fascial layer. Our brain catches the sensations and orders to body functions unconsciously. This may lead to waking up our anti-aging system, it would not be strange.

Aging is due to genes mechanism and redeemable. However, only needling treatments do not expect the results. "Life style" is big role for anti-aging.

There follows in basic 3 steps for anti-aging. 1. to give damage to our mind and body, on purpose. 2. to recover the damage thoroughly. 3. to repeat steps of 1 and 2. German philosopher, Friedrich Nietzsche said "What does not destroy me, makes me stronger." Proper painful experiences increase our abilities. We are learning from our past failure experiences. Control processes engaged in halting the automatic retrieval of unwanted memories have been shown to reduce the later of the targets of suppression, psychology group of University of Cambridge in 2018. This is called "post-traumatic growth".

Participants reporting more trauma demonstrated greater generalized forgetting of suppressed material. These findings raise the possibility, given proper training, individuals can learn to better manage intrusive experiences, and are broadly consistent with the view that moderate adversity can foster resilience later in life. (9) Human's fate is decided by painful experiences and how often the body suffers. This idea is called "Hormesis". Hormesis is a characteristic of many biological processes, namely a biphasic response to exposure to increasing amounts of a substance or condition. Within the hormetic zone, there is generally a favorable biological response to low exposures to toxins and other stressors. If it is excess, it works for negative, however, if it is proper amount of poison, it works for positive. Vaccination is the one of example of hormesis. It is made from the weakened pathogen, and as we take the vaccine, body cells activate their immune system for fighting. In the same way, the proper physical activities damage the muscles fiber cells and during the process of recovery the muscles become stronger. This "post-traumatic growth" and "Hormesis" will be courage to us when we face on hard time in our life. Our ability of recovery is woken up by only painful experiences. Equally, the recovery phase is essential as well. It is said that physical exercises consist of training and rest time for anti-aging. When we control to take a rest thoroughly, it boosts the recovery anti-aging mechanism. To continue and repeat these painful experiences and recovery phases, we establish the positive spiral in our body, leading to gradually our aging speed slows down.

Our body calls need to engage the survival circuit, telling longevity genes to do what they have been doing since primordial times. It led to minimizing epigenetic change, and slow down aging. Dr. Sinclair explained for practice for this process some simple life changes for longevity such as, an intermittent fasting, cold exposure, exercising with the right intensity, and eating less meat. To go hungry every third day lived 15 to 20 % longer than their cousins on a regular diet. In cellular level, exercise is the application of stress to our bodies. Exposing the body to less-than-comfortable temperature is another very effective way to turn on our longevity genes. Mice cool down about half degree Celsius, 20 % longer life for female mice, the equivalent of about seven additional healthy human years, while male mice got an extension of 12%. Additionally, to get painful and to rest, both have the core of "proper". Of course, extreme trauma may cause the PTSD or any mental disorders, and physical injury. Also, less stimulations cause lack of exercises for brain and physical. Out of "proper" increases aging speed. The body anti-aging system of "Hormesis" is the basic. However, this is not activated without painful and recovery phases. This explains the evolution from Homo sapiens. Ancient human-beings lived under hard physical jobs daily for getting foods, and hunger regular basis. "Painful" life style and condition of hunger are their life style. When people have enough stockpile, there are no meaning to move our body. If some individual who prefer to do "exercises, training", the species are eliminated. They are just wasting the energy. Our brains were prepared for the system of "hate exercises". We inherited the system from ancients who did not want to go hunting however, in order to survive they went.

Lack of exercise is a major cause of chronic diseases. This is an unavoidable condition in modern life style. Fast facts, only 1 in 4 US adults and 1 in 5 high school students meet the recommended physical activity guidelines. About 31 million adults aged 50 or older are inactive, meaning that they get no physical activity beyond that of daily living. (10) We are living with enough foods without any physical force to get food itself. This is the perfect to survive our species. However, our body system of "Hormesis" understand this environment as "You do not do exercises, but you have enough foods and nutrition. So, you are not in trouble for living. If so, the reinforcement system of mental and physical is useless now, let it sleep." Ancient body mechanism recognizes no need to upregulate our body system for surviving. Following the inactivation, our whole body is declined, such as; physical dysfunction which is muscles broken down, proteins have reduced synthesis speed, muscles shrinking and reducing bone repair mechanism, reducing the capacity of blood pump. And it leads to decreasing motivation due to decrease in secretion of neurotransmitter; dopamine, adrenalines, and so on. In this state, our

appearance is getting older at once. (11)(12) Our body is face with a dilemma. We need to have “painful” for opening the antiaging system of “Hormesis”.

The elderly people in Sardinia island of Italy, they have worked a hard physical job throughout their lives. The shepherd who is over 90 years, bring all his sheep to low altitude area every November until April or May. Many people who are over 100 years, have job, some are working at olive farm and hike about 12 km. After job, they gather and enjoy wine, check each healthy condition. If the body condition is not satisfied, they reduce their job next day. They never overdo. They are practicing “painful and recovery, repeating” in their cultural healthy life style.

There are many effective anti-aging techniques. These are based on the book “Immortality and longevity method” in 2021, January, Yu Suzuki the auther who read over 3000 scientific theses about related aging which were written from 1970. He showed 83 methods of effective anti-aging. The last chapter of this book, he picked the best quick methods with the quotation of “It takes a long time to grow young.” by Pablo Picasso. The following is for the beginner of anti-aging who has never tried anti-aging or has been feeling sick.

First, “Progress” is gradually adding burden. It is essential for anti-aging. The benefits are rejuvenating the appearance, maintaining telomeres, and improvement of brain function.

Basic anti-aging introduction methods

Step 1. improvement of sleeping environment

There are many science evidences and experiments on sleeping as important for anti-aging. The recent famous experiment is that applying the UV ray to 60 adult female skin. The group of poor-quality sleep recovered the skin condition 30% less and some were never improved after 3 days. Additionally, women with chronic insomnia have a 20% higher obesity rate. (16) There is no golden rule for insomnia improvement. Generally, we are said, to set the room temperature in 18 to 19 degree, avoid to use blue light from electronic devices before going to bed, to do physical exercises during the daytime, avoid to eat or drink alcohol before going to bed and so on. “Brain dump” and “body scan meditation” are recommended. Brain dump is to write down our tasks which we will or must do tomorrow, before sleep. This action leads to falling sleep average 9 mins earlier. (17)

Step 2. increase activities

It is important to increase Non-Exercise Activities Thermogenesis (NEAT). NEAT encompasses the energy expenditure of occupation, leisure, basic activities of daily living, and unconscious/spontaneous activity such as fidgeting. The NEAT affects the most part of daily energy 15-50% in whole calories burned. (18)

Step 3. Skin care

This lets us recognize that skin care affects anti-aging quickly. The skin is our largest organ and certainly the most visible one. Therefore, the skin damages cannot be ignored. The editors of “The Journal of clinical investigation” summarized from interviews to skin specialists and previous researches, the skin care a thorough application of retinoid (Vitamin A derivative, start from 0.3%), moisturizers, and sunscreens. (19)

Step 4. Improve quality of diet

Change white bread to whole wheat bread, coke to water, bacon to chicken breast, to stop hypertension (DASH diet), anti-Müllerian hormone (AMH). Adherence to the DASH diet, compared to the control diet, resulted in a significant decrease in BMI. Significant decreases in AMH, insulin, homoeostasis model of assessment-estimated insulin resistance, free androgen index and malondialdehyde (MDA) levels, and

significant increases in quantitative insulin sensitivity check index, sex hormone-binding globulin and nitric oxide were also seen in the DASH group compared with the control group. (20)

Step 5. Increase the load of exercise or introduce fasting

Introduce to do “Sprint interval Training” (SIT) (21) which is a time-efficient exercise strategy to improve insulin sensitivity and other indices of cardiometabolic health. SIT involved 1 minute of intense exercise within a 10-minute time commitment. Performing three weekly sessions. SIT involved 10 to 30 seconds 'all-out' cycle sprints interspersed, interval break for 5 times length (if 10 secs, break 50 secs). Repeat this protocol 3 times.

Introduce “Time-Restricted Feeding” (TRF) (22) The study constitutes the first trial of early time-restricted feeding (eTRF) that involves eating early in the day to be in alignment with circadian rhythms in metabolism. eTRF improved insulin sensitivity, β cell responsiveness, blood pressure, oxidative stress, and appetite.

If you complete these 5 steps, your anti-aging ability system of “Hormesis” will be activated enough, the author said.

Labeling aging itself as a disease is both misleading and detrimental. The present study classifies aging as a disease complex, emphasizing the etiologic significance of both internal and external environmental stress, according to “The aging syndrome”, Robert M. Perlmán, M.D. (1) In our youth-obsessed society, ageism already runs rampant in Hollywood, the job market, and even presidential races. And calling aging a disease doesn't address critical questions about why we age in the first place.

Most important skill is what we obtain in our life under controlling. We are learning from ancient history, people and ourself. Each body cells are doing the same process unconsciously. When people lost the ambition or purpose to live, people are rapidly aging leading to death. Since our cells started to divide, our body has kept moving. It won't stop until we die. To take a rest is same as important for redeeming aging. Anti-aging sciences show us “How do you live? If you choose correct way, live longer with healthy condition.”

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