



## LONGIVITY ENHANCEMENT: BY APPLYING HEALTH BEHAVIOR MODIFICATION

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### ABSTRACT

**Background:** Longevity refers to living a longer and healthier life. Promoting longevity through effective health behavior modification is an important strategy for improving overall well-being and quality of life.

**Objectives:** This study aimed to examine the definition and significance of longevity and to explore approaches for enhancing longevity through behavioral modification.

**Methodology:** This research employed documentary analysis based on textbooks, academic books, journal articles, and related research studies.

**Results:** The findings indicate that: (1) longevity involves sustaining a longer and healthier lifespan, while behavioral modification refers to transforming unhealthy habits into healthier practices; (2) the significance of longevity extends beyond merely increasing lifespan to improving quality of life; and (3) strategies for enhancing longevity through behavioral modification include regular physical exercise, balanced nutrition, adequate sleep, effective stress management, positive social relationships, avoidance of harmful behaviors, and appropriate healthcare practices such as disease prevention and medical monitoring.

**Conclusion :** This documentary research, analysis based on textbooks, academic books, journal articles, and related research studies. Enhancing longevity through behavioral modification include regular physical exercise, balanced nutrition, adequate sleep, effective stress management, positive social relationships, avoidance of harmful behaviors, and appropriate healthcare practices. Important for applying in healthy daily life.

**Keywords :** Longevity enhancement, Applying, Health behavioral modification

### Introduction

In the present population ageing is a major demographic transition both opportunities and challenges both in Thailand and global. From the year 2000 to 2050, the proportion of the world's population aged 60 years and older will double, whereas the proportion of those aged 80 years and older will almost quadruple . WHO advocates moving away from a disease-focused model of ageing and frailty, and towards a more positive model of healthy ageing that focuses on preserving functional ability and preventing loss of capacity. Healthy ageing is defined by WHO as "the process of developing and maintaining the functional ability that enables well being in older age. (WHO, 2015). Including focus on health life span, longevity and quality of life of the people also.



The average age of the global population is increasing rapidly, driven by multiple factors such as longer life expectancy and reduced birth rates in both developed and developing countries (United Nations, 2019). Especially the trend of longevity is very important in the world. Including medical factor and healthy life style are increasing important trends.

As the demographic transition enters a new stage of a longevity transition, focus needs to extend beyond an ageing society towards a longevity society. An ageing society focuses on changes in the age structure of the population, longevity society seeks to exploit the advantages of longer lives through changes in how we age. Achieving a longevity society requires substantial changes in the life course and social norms, and involves an epidemiological transition towards a focus on delaying the negative effects of ageing. (AndrewJ. Scotts, 2021)

Health Adjusted Life Expectancy, or Health Life Expectancy, is an important population health measure, as stated by the Director-General of WHO in the mid-1990s: "Increased longevity without quality of life is an empty prize." Health Life Expectancy is more essential than life expectancy. We should keep in mind that health expectancy numbers vary depending on the definition of health, the measurements of health used, and the technique of calculation. The duration of both healthy and total life expectancy could rise, while the fraction of healthy life expectancy could fall. We need to understand what variables influence these changes and differences in order to recommend approaches to improve population health. (Saito, Yasuhiko; Robine, Jean-Marrie; & Crimmins, Eileen M, 2014 : Chulaporn Sota et al (2024).

The broad changes required to achieve healthy longevity include an increased focus on healthy life expectancy, a shift from intervention towards preventive health, a major public health agenda to avoid increases in health inequality, the establishment of longevity councils to ensure coordinated policy across government departments, and intergenerational assessment of policies, to ensure that in adapting to longer lives, policies are not skewed towards older people. A longevity society represents a new stage for humanity and requires deep-seated notions about age and ageing to be challenged if society is to make the best use of the additional time that longevity brings. (AndrewJ. Scotts, 2021)

As a result, researchers would like to investigate the definition, importance of longevity Enhancement by Applying Health Behavioral Modification. in order to better understand and could apply or create appropriate intervention further for longevity enhancement.

### **Research Objective (s)**

1. Study the definition of longevity enhancing and behavioral modification.
2. Study the important of longevity enhancing and behavioral modification.
3. How to improve longevity enhancing by applying behavioral modification.

### **Literature Review**

**Longevity enhancing** The term "longevity" describes the length or duration of life, usually determined by comparing an individual's or species' lifespan to that of other species. But according to contemporary health sciences, longevity refers to both living longer (lifespan) and living better (health span), which means preserving social, mental, and physical well-being throughout life.

### **2. Longevity Principles**

The guiding concepts that describe how to live a long and healthy life are known as the



principles of longevity. They combine psychology, lifestyle, and biology to create a holistic approach to well-being.

#### Principle 1: Comprehensive Harmony

Maintaining homeostasis through appropriate sleep, diet, and emotional stability is essential for longevity.

#### Principle 2: Maintaining Health Throughout Life

Health is cumulative, meaning that our actions during childhood, adulthood, and old age all have an impact on our later years. The secret to healthy ageing is early prevention.

Principle 3: Adaptation to Stress. Stress isn't always bad. Exercise and mental challenges are examples of "eustress," or positive stress, which fortifies biological systems and fosters resilience.

Principle 4: Connection and Purpose. Longevity and mental well-being depend on having social connections and a purpose in life. Individuals who have a strong sense of purpose tend to live longer and recover from illness more quickly.

#### Principle 5: Prevention Is Better Than Treatment

Longevity research focusses on early lifestyle modifications, exercise, mental health, and nutrition in order to prevent disease rather than just treat it.

**Health Behavioral Modification or Life style medicine is very important for increasing longevity** (The American College of Lifestyle Medicine, 2025)

#### **Health Behavioral Modification or Lifestyle medicine.**

Lifestyle medicine is an evidence-based medical specialty designed to treat the whole person by empowering patients and clinicians to make lasting, healthy choices together. The goal of lifestyle medicine, an evidence-based medical specialty, is to treat the full person by enabling patients and doctors to jointly make long-lasting, healthful decisions. Lifestyle medicine, which treats, reverses, and prevents chronic illnesses including type 2 diabetes and cardiovascular disease, is based on six major interrelated pillars.

##### 1. Nutrition

Increase your intake of whole foods and concentrate on nutrient-dense, plant-based, minimally processed meals and snacks.

##### 2. Exercise

Include aerobic, strength, and flexibility exercises in your daily regimen.

##### 3. Stress

To face the constantly shifting demands of life and increase resilience, cultivate good coping mechanisms.

##### 4. Sleep

Establish the ideal environment for getting seven to nine hours of good sleep each night so that the body can recharge and heal.

5 Relationships. Interconnectedness .Create connections and supportive relationships that give life meaning and purpose.



## 6. Avoiding dangerous substances

Steer clear of actions that include using or being around dangerous chemicals.

Redefining care and restoring health

## Research Methodology

This was documentary research, which was conducted by reviewing documents and literature related to longevity enhancing by applying behavioral modification from textbooks and documents, as well as searching for information from journals, various databases, websites, and related research. The data was then analyzed into categories (content analysis), summarizing methods, definition, importance, how to improve longevity enhancing by applying behavioral modification, and guidelines for improving longevity enhancing by applying behavioral modification

## Results

### 1. Definition of Longevity and Health Behavior modification.

Longevity and Health Behavior modification.

#### Longevity

longevity is living a longer and healthier life. It means how long a person is going to live, and how healthy his later life will be, or Longevity refers to the ability to live a long life or the lifespan of an organism

#### Health Behavior modification.

Health behavior modification is a therapeutic approach that uses learning principles like conditioning to change unhealthy habits into healthier ones. This involves using techniques such as reinforcement (positive or negative) and other strategies to make desired behaviors more likely and undesired behaviors less likely. The goal is to improve health outcomes by altering specific actions through environmental adjustments, self-monitoring, goal setting, and other motivational techniques.

### 2. Study the important of longevity enhancing and behavioral modification.

The importance of longevity goes beyond simply living longer — it includes living healthier, more productive, and meaningful lives.

The Importance of Longevity

#### 1. Promoting Health and Quality of Life

Longevity emphasizes not only lifespan but also **health span** the number of years lived in good health without major disease or disability. A longer health span allows individuals to maintain physical independence, mental clarity, and emotional well-being. Research shows that healthy longevity reduces the burden of chronic diseases such as cardiovascular disease, diabetes, and dementia, improving both individual and community health outcomes (World Health Organization, 2022).

#### 2. Advancing Scientific and Medical Knowledge

Studying longevity helps scientists understand the **mechanisms of aging** at genetic, molecular, and cellular levels. Discoveries in longevity science — such as the role of telomeres, caloric restriction, or sirtuin activation — have led to potential interventions to delay aging and prevent age-related diseases (Lopez-Otin et al., 2013). These advances benefit medicine, biotechnology, and personalized health.



### 3. Social and Economic Benefits

An increase in longevity contributes to **economic productivity** by allowing people to work longer, share experience, and support younger generations. Healthy older adults can continue to contribute socially and economically. However, if longevity is not accompanied by good health, it can create challenges for healthcare systems and pension structures – highlighting the importance of *healthy* longevity rather than just longer life expectancy (Bloom et al., 2020).

### 4. Strengthening Intergenerational Relationships

Longer lives provide more time for **intergenerational learning and family stability**. Elders can pass on cultural knowledge, wisdom, and values, enriching communities. Societies that promote longevity also tend to value social connection, empathy, and cooperation – qualities that strengthen social capital.

### 5. Guiding Public Policy and Sustainable Development

Longevity research informs **public health and policy planning**. Nations with aging populations need strategies to maintain workforce participation, ensure healthcare access, and design age-friendly environments. The United Nations' Decade of Healthy Ageing (2021–2030) recognizes longevity as essential to achieving sustainable development and human well-being.

4. How to improve longevity enhancing by applying behavioral modification.

To improve longevity through behavioral modification, use techniques like positive and negative reinforcement to adopt healthy habits, such as exercising, eating well, and getting enough sleep. These techniques can help create a strong foundation for a longer, healthier life by reinforcing positive choices and discouraging unhealthy ones

**Apply behavioral modification for longevity. The important approach both positive and negative are very important such as.**

Positive approach by reward yourself for completing healthy actions to make them more likely to occur again. Rewards can be small, like praise, a small treat, or extra leisure time after a workout or on a healthy eating day.

Negative approach by remove an unpleasant stimulus once you complete a desired behavior. For example, the annoying beeping of a car's seatbelt reminder stops only when you buckle up, making you more likely to use it in the future. Another example is to remove a tempting snack from your vicinity after a healthy meal.

**Apply behavioral modification for longevity, Focus on key behaviors for longevity namely.**

#### 1. Healthy eating:

Develop new habits around eating by using positive reinforcement for healthy meal choices and avoiding environments that trigger unhealthy eating patterns., Diet: Patterns such as higher fruit/vegetable intake, more plant-based foods, lower processed food, healthy macronutrient balance are associated with longer/healthier life

#### 1. Regular exercise:

Reward yourself after completing workouts to build the habit. You can also use negative reinforcement by setting a goal to walk a certain number of steps, and you can remove the self-imposed "restriction" of fewer steps once you hit your goal .Physical activity: Regular exercise (aerobic + strength), maintaining mobility, avoiding sedentary behaviour. Lifestyle reviews show strong links with longevity

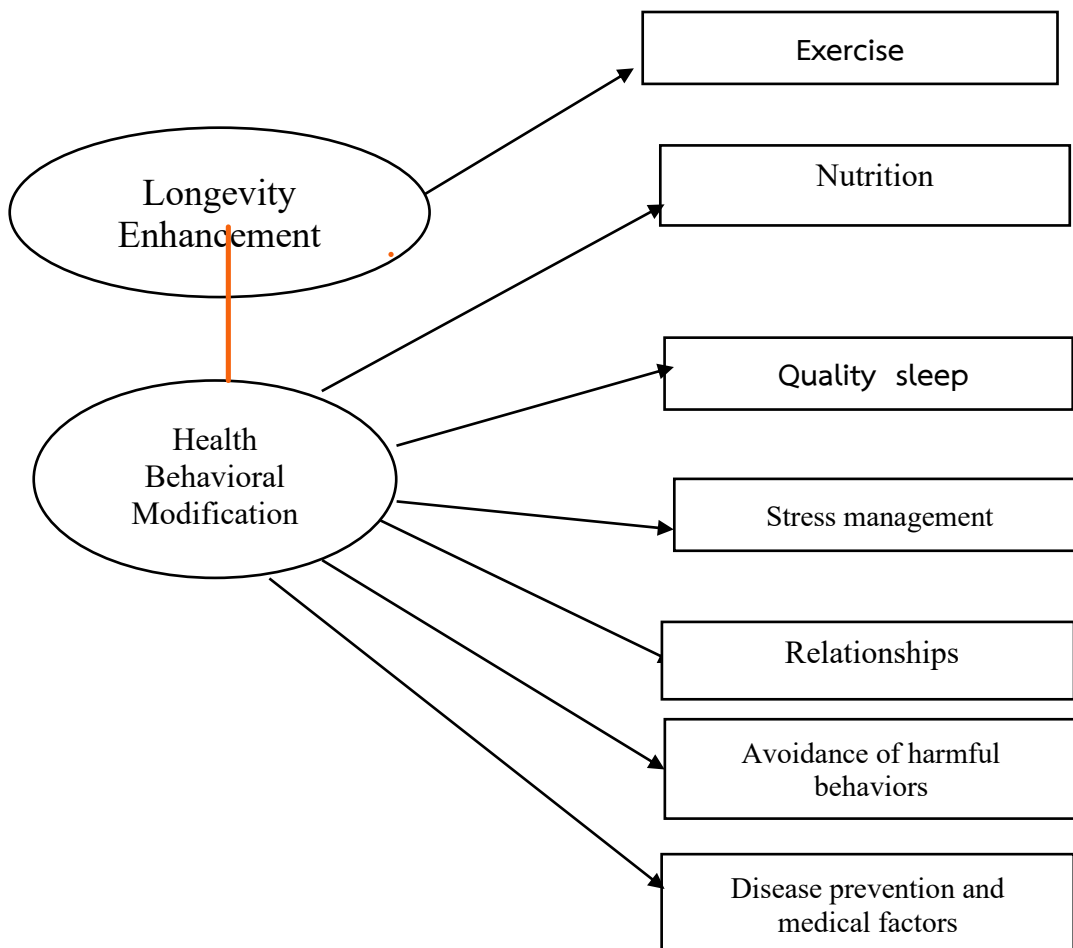
#### 2. Quality sleep.

Create a routine and reward yourself for sticking to it. If you have trouble sleeping, try techniques to make your bedroom less stimulating at night.

3. Stress management.

Practice techniques like meditation, deep breathing, or hobbies to manage stress instead of resorting to unhealthy coping mechanisms like excessive drinking or smoking. Psychological/mental health, stress resilience, purpose in life, social connectedness: These may not get as much public attention as diet/exercise, but research supports their relevance

4. Avoidance of harmful behaviors: Not smoking, moderate alcohol (or none), avoiding obesity/metabolic disease.
5. Good relationship in family, social, avoid conflict and could manage conflict smoothly.
6. Health care, disease prevention and medical factors. Preventive health care, early diagnosis & treatment of chronic diseases (cardiovascular disease, cancer, diabetes) obviously impact lifespan. In populations with good medical care, chronic diseases become predominant determinants. The management of risk factors (hypertension, hyperlipidemia, etc) shifts the trajectory of aging and increases “health span” (years lived without major disability) as figure



**Figure 1 Model of longevity enhancement by applying health behavior modification**



**Discussion** 1). longevity is promote living a longer and healthier life mean while behavioral modification is a therapeutic approach that uses learning principles like conditioning to change unhealthy habits into healthier ones or life style medicine. These is high valuable for save cost from treatment, drug and hospital admission. Relevance Dawn Mussallem (2025)said that “Lifestyle medicine is integral to delivering successful world-class care and is a fundamental part of Mayo’s integrated clinical practice, education, and research.”Jon Bonnet (2025) said that “We all went into medicine to be healers, and lifestyle medicine is arguably the safest, cheapest, and most evidence-based set of interventions that exist to do just that.” Wayne Dysinger (2025) said that “This isn’t just about individual lives, it’s about a healthier society, a lighter burden on healthcare systems, and a world where improved well-being is the norm.”

2). Behavioral behaviors modification are goes beyond simply living longer it includes living **healthier, more productive, and meaningful lives including good quality of life. Various of health** behaviors modification have to focus such as health literacy improvement, life style modification basically knowledge, attitude , perception, value on health practice including applying behavioral science modification.

“We are committed to supporting access to high-quality care and 3).Improve longevity enhancement by applying behavioral modification, have to focus on improve longevity through behavioral modification, use techniques like positive and negative reinforcement to adopt healthy habits, such as exercising, eating well, and quality sleep, stress management, good relationship, avoidance of harmful behaviours including health care, disease prevention and medical factors. These techniques can help create a strong foundation for a longer, healthier life by reinforcing positive choices and discouraging unhealthy as well as longevity enhancement. Strengthen for improve health behaviors continuously are very important for all people , set the goal in daily life and improving plan are essential. Including Kate Goodrich. (2025). Said that We are committed to supporting access to high-quality care and improving the health for all of our members and patients. Motivating lifestyle change is critical in preventing and treating chronic diseases, like diabetes. This partnership will ensure our clinicians receive evidence-based lifestyle change and behavioral motivation training to treat chronic disease more effectively.”

## Conclusion

This documentary research was based on textbooks, books, articles, research studies, theses and electronic documents that have content related to Longevity Enhancement and Health Behavioral Modification. Content analysis was used. The results of the study found that ). The definition of longevity is promote living a longer and healthier life mean while behavioral modification is a therapeutic approach that uses learning principles like conditioning to change unhealthy habits into healthier ones.

3).Improve longevity enhancement by applying behavioral modification, have to focus on improving longevity through behavioral modification, use techniques like positive and negative reinforcement to adopt healthy habits, such as exercising, eating well, and quality sleep, stress management, good relationship, avoidance of harmful behaviors including health care, disease prevention and medical factors. These techniques can help create a strong foundation for a longer, healthier life by reinforcing positive choices and discouraging unhealthy as well as longevity enhancement.



## Recommendations

### Recommendations for applying.

1. Encouragement academic personnel focus on how to improve longevity enhancing by applying behavioral modification.
2. Stimulate health personnel to close the gap of Health Life Expectancy and Life Expectancy .
3. Available resource for increase how to improve longevity enhancing by applying behavioral modification.

### Recommendations for further research.

1. Study factor effecting how to improve longevity enhancing by applying behavioral modification.
2. Conduct the effectiveness of the program for increasing how to improve longevity enhancing by applying behavioral modification.
3. Expand and Study the effectiveness of improving longevity enhancing by applying behavioral modification.

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