

Concept of Ageing (Jara) and its Management Through Rasayana in Ayurveda

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Abstract

Ageing (Jara) is a universal and inevitable biological process marked by progressive decline in physiological efficiency, adaptive capacity, and tissue integrity, ultimately leading to senescence. Modern science explains ageing through cumulative cellular damage and reduced repair mechanisms, while Ayurveda presents a holistic understanding integrating body, mind, senses, and soul. According to Ayurveda, ageing is a lifelong, cumulative process that becomes evident after maturity and is mainly attributed to Dhatu-kshaya (tissue depletion), Agni-mandya (reduced metabolic efficiency), and Dosha imbalance, particularly Vata predominance.

Classical Ayurvedic texts describe a clear understanding of metabolic balance through the concepts of Chaya (anabolism) and Kshaya (catabolism), recognizing ageing as natural yet modifiable. Rasayana Tantra, one of the eight branches of Ayurveda, is specifically devoted to delaying ageing, enhancing longevity, vitality, immunity, and intellect, and preventing age-related diseases. Rasayana therapy aims not merely to extend lifespan but to improve the quality of life by maintaining structural and functional integrity of tissues and preserving psychosomatic harmony.

The present study is a conceptual and analytical review based on classical Ayurvedic texts, their commentaries, and relevant modern literature on ageing. It examines the concept of ageing from both modern and Ayurvedic perspectives, with special emphasis on Rasayana therapy, its definitions, classifications, and therapeutic utility. The review highlights that the Ayurvedic approach to ageing is preventive, promotive, and holistic, offering valuable insights for healthy ageing and integrative geriatric care.

Keywords: Ageing, Jara, Rasayana, Ayurveda, Longevity, Healthy ageing

INTRODUCTION

Ageing is a universal, inevitable biological phenomenon that has intrigued thinkers, physicians, and philosophers since antiquity. Fundamental questions—what ageing truly is, when it begins, whether it is an unavoidable destiny of life, and which biological mechanisms govern the gradual decline of bodily functions—remain only partially answered even in the light of modern scientific advances. Senescence manifests as a progressive reduction in physiological efficiency following maturity, ultimately

culminating in death, though death itself is rarely attributable solely to ageing. Rather, ageing represents a gradual loss of the organism's capacity to maintain homeostasis, repair damage, and adapt to internal and external stressors.

From a biological standpoint, living systems are characterized by continuous self-maintenance through anabolic and reparative processes. The paradox of ageing lies in understanding how an organism endowed with self-renewing capacity gradually deteriorates. Contemporary definitions describe ageing as a progressive, unfavourable change correlated with time, marked by declining adaptive responses, increased vulnerability to disease, and diminished functional reserve. While ageing encompasses both development and decline, senescence refers specifically to the degenerative processes that eventually render life incompatible with survival. Importantly, not all age-related changes are pathological; some may be neutral or even beneficial, such as accumulated experience and wisdom. Thus, the modern concept increasingly emphasizes not merely longevity but successful or healthy ageing, wherein functional independence is preserved for as long as possible.

Ayurveda, one of the oldest living systems of medicine, offers a remarkably comprehensive and integrative understanding of ageing. According to Ayurvedic philosophy, life (Ayu) is an inseparable union of Sarira (body), Indriya (sense organs), Sattva (mind), and Atma (soul). Continuous activity (Pravrtti)—from conception until death—is a hallmark of living beings, driven by constant metabolic processes of nourishment and utilization. Growth and reproduction constitute the primary objectives of early and middle life, while decline begins following the cessation of reproductive capacity. From this perspective, ageing is not a sudden event but a lifelong, cumulative process arising from sustained biological activity and gradual diminution of tissue efficiency.

Classical Ayurvedic texts demonstrate a profound understanding of metabolic balance through the concepts of Chaya (anabolism) and Kshaya (catabolism). The very definitions of Sarira and Kaya reflect these opposing yet complementary processes. Ageing, in Ayurvedic terms, is primarily a manifestation of Dhatu-kshaya, decline in Agni, and disturbance of Dosha equilibrium, particularly Vata. Recognizing ageing as both natural and modifiable, Ayurveda places great emphasis on Rasayana Tantra, the branch dedicated to the preservation of youthfulness, enhancement of vitality, resistance against disease, and prolongation of lifespan.

Rasayana therapy aims not merely at extending the duration of life but at improving its quality by maintaining structural and functional integrity of tissues, strengthening immunity, enhancing intellect, and delaying the onset of Jara (ageing) and Vyadhi (disease). Thus, the Ayurvedic approach to ageing is holistic, preventive, promotive, and curative—offering valuable insights for contemporary gerontology and integrative healthcare. The present article explores the concept of ageing through both modern scientific understanding and Ayurvedic principles, with special emphasis on the role of Rasayana in promoting healthy ageing and longevity.

MATERIALS AND METHODS

STUDY DESIGN:

The present work is a conceptual, descriptive, and analytical review aimed at understanding the phenomenon of ageing (Jara) and its management through Rasayana Tantra as described in classical Ayurvedic literature, with supportive correlation to contemporary biological concepts of ageing.

SOURCE OF DATA:

The study is primarily based on classical Ayurvedic texts, their authoritative commentaries, and relevant

modern literature on ageing and senescence.

RESULT

AGEING:

Ageing has long been a subject of intellectual inquiry, raising fundamental questions regarding its onset, inevitability, cellular involvement, and its role in the ultimate decline and death of living organisms. Despite centuries of observation and scientific inquiry, definitive answers to many of these questions remain unresolved. Nevertheless, a clear conceptual understanding of ageing, also referred to as senescence, is essential for systematic exploration of this phenomenon. Ageing is primarily a feature of adult life and represents a progressive biological process that ultimately culminates in death. ^[1]

Senescence broadly correlates with the passage of time. In humans, a gradual decline in the functional efficiency of organs and physiological systems commonly begins during the fourth decade of life. This decline becomes more apparent in the fifth decade and progressively intensifies thereafter. With advancing age, cumulative degenerative changes occur across multiple systems, often resulting in death during the seventh or eighth decade of life. However, death is rarely attributable solely to ageing; rather, it generally results from age-associated pathological conditions rather than senility itself. ^[2]

A fundamental characteristic of living organisms is their capacity for self-maintenance, repair, and continuous renewal. This ability to synthesize and reconstitute biological structures distinguishes living systems from non-living matter. The occurrence of ageing despite such regenerative potential presents a biological paradox. Ageing is therefore understood as a consequence of progressive decline in the efficiency of cellular repair, maintenance, and reconstitution mechanisms, leading to accumulation of damage and reduced adaptive capacity. ^[3]

DEFINITION:

Although ageing is difficult to define precisely, it is generally described as a process of progressive and unfavourable change that is usually associated with the passage of time, becomes evident after attainment of maturity, and ultimately terminates in the death of the individual. ^[4] A more widely accepted definition describes ageing as the cumulative processes occurring throughout life that result in changes which reduce an individual's ability to adapt to biological stress and maintain physiological stability. ^[5]

Ageing is thus regarded as a normal biological phenomenon characterized by a gradual decline in the body's homeostatic and adaptive mechanisms. This progressive alteration leads to measurable structural and functional changes in tissues and organs, accompanied by increased susceptibility to environmental stressors, disease, and functional impairment. ^[6]

Although the terms ageing and senescence are often used interchangeably, they represent distinct biological concepts. According to Charles Mobbs, ageing refers to a continuous and spontaneous process involving growth and maturation during childhood, adolescence, and early adulthood, followed by gradual functional decline during middle and late life. ^[7] In contrast, senescence denotes the progressive loss of cellular capacity for division, growth, and function over time, ultimately resulting in biological failure incompatible with survival and culminating in death. ^[8]

While ageing encompasses both constructive developmental changes and degenerative decline, senescence is restricted to the irreversible degenerative processes that render continued life impossible. Importantly, not all age-related changes are pathological; some changes occurring with advancing age, such as greying of hair or baldness, are biologically neutral, while others, including increased experience and wisdom, may be advantageous. ^[9]

Normal ageing refers to the typical accumulation of physiological changes, diseases, and impairments commonly observed in older individuals. In contrast, successful or healthy ageing is defined as a process by which detrimental effects of ageing are minimized, functional capacity is preserved, and independence is maintained until senescence eventually limits survival. ^[10]

AGEING – AN AYURVEDIC PERSPECTIVE:

Continuous reactivity and transformation in structure and function constitute fundamental characteristics of all living beings within the biosphere. Modern science describes the biosphere as an open system that constantly interacts with its environment. However, the nature and degree of this interaction vary among organisms and are determined by inherent biological factors. This continuous reactivity is initiated at the time of conception, persists throughout the lifespan, and ceases completely at death. During the lifespan, nature primarily serves two essential purposes: growth and reproduction. Growth ensures attainment of maturity necessary for reproduction, while the completion of the reproductive phase is followed by a gradual decline culminating in death. Thus, ageing, both in chronological and qualitative terms, may be considered to commence from the moment of conception. ^[11]

Ageing may therefore be understood as the cumulative outcome of continuous biological activity throughout life. This uninterrupted activity is sustained by constant processes of utilization and conservation of substances required for energy production. If consciousness (Atma) is symbolically regarded as a form of vital energy, then continuous activity (Pravrtti) becomes evident at both the cellular (microcosmic) and systemic (macrocosmic) levels. This concept has been clearly elucidated in classical Ayurvedic literature through the definition of life (Ayu) as an inseparable union of body, sense organs, mind, and soul. ^[12] Although ageing primarily manifests in the physical body, the other components remain essential for a complete understanding of life. The various physiological activities exhibited by the body signify the presence of Atma, which is considered the principal sustaining force of life; in its absence, all activity ceases and the body is regarded as dead. ^[13] These classical explanations gain greater relevance when interpreted in the context of modern biological principles.

ANABOLISM AND CATABOLISM IN AYURVEDA:

The concepts corresponding to anabolism and catabolism were well recognized by ancient Ayurvedic scholars several millennia ago, despite the absence of advanced technological tools. This understanding is evident from classical definitions related to the body and life processes.

While defining the physical body, Ayurveda explains:

चैयतेऽन्नादिभिरिति कायः। (Charak Samhita, Sarirasthana 1/6)
शीयते नश्यतीति शरीरम्। (Susruta Samhita, Sarirasthana 5/3)

The term Kaya, synonymous with the body, denotes nourishment and growth through intake of food, indicating anabolic processes, whereas the term Sarira signifies continuous degeneration and destruction, reflecting catabolic activity. ^[14]

Similarly, the definition of life described in the first chapter of Charak Samhita also reflects total metabolic activity. The commentary explains life as that which supports the body and prevents its decomposition. ^[15] This description emphasizes the body's resistance to decay and its capacity to counter destructive influences, thereby indicating ongoing anabolic and reparative processes essential for sustaining growth and structural integrity. Such interpretations highlight the Ayurvedic recognition of metabolic balance as a central determinant of health, ageing, and longevity.

RASAYANA:

Attainment of the four fundamental objectives of life, namely Dharma, Artha, Kama, and Moksa, is

possible only through the maintenance of a healthy and long lifespan. A healthy life enables the achievement of well-being in both the present world and the hereafter, collectively referred to as Ubhayaloka Hita. These pursuits are further categorized into three essential desires: preservation of life, acquisition of wealth, and spiritual fulfilment. Among these, preservation of life is considered paramount, as the remaining pursuits are meaningful only when life itself is sustained. [16]

Acharya Charak emphasizes the supreme importance of life preservation by stating:

प्राणपरित्यागे हि सर्वत्यागः ।
तस्यानुपालनं — स्वस्थस्य स्वस्थवृत्तानुवृत्तिः, आतुरस्य च विकारप्रशमनेऽप्रमादः ।

(Charak Samhita, Sutrasthana 11/4)

This statement conveys that the cessation of life results in the loss of all pursuits, and therefore life must be protected through adherence to healthy conduct in the healthy individual and diligent management of disease in the afflicted. [17] The commentary further highlights the role of health preservation in attaining longevity, indicating that sustained health is the foundation of prolonged life. [18]

According to Ayurveda, an individual is considered healthy when the bodily humours, tissues, metabolic processes, and waste elimination are in a state of equilibrium, and when the mind, soul, and sensory as well as motor organs function harmoniously. [19] Maintenance of tissue equilibrium is achieved through appropriate therapeutic interventions. Treatment is broadly classified into pharmacological and non-pharmacological measures, among which pharmacological therapy is further divided into rejuvenative and virility-promoting therapies. [20] Both these therapeutic approaches are categorized under measures that enhance vitality in healthy individuals and play a crucial role in sustaining life and strength.

Rasayana therapy, also known as rejuvenation therapy, constitutes one of the eight principal branches of Ayurveda and has been practiced extensively since ancient times. Although its primary objective is the promotion and preservation of health, Rasayana is also employed effectively in disease management. By simultaneously preventing disease occurrence and facilitating recovery, Rasayana serves a dual purpose of eliminating disorders and preventing their recurrence, thereby promoting longevity and enhancing quality of life. [21]

DEFINITION OF RASAYANA:

रसायनतन्त्रं नाम वयःस्थापनमायुर्वेधावलकरं रोगापहरणसमर्थं च ।

(Sushruta Samhita, Sutra Sthana 1/7/7)

Rasayana Tantra is defined as that branch of Ayurveda which is capable of delaying the ageing process, enhancing longevity, intellect, and physical strength, and eliminating diseases. [22]

Dalhana, in his commentary, explains that Vayahsthapana implies maintaining youthfulness and delaying senescence, while Ayuskara denotes prolongation of life up to or even beyond one hundred years. According to another interpretation, Vayahsthapana refers specifically to the preservation of youthful attributes and prevention of premature ageing. Chakrapani also supports this view. [23]

Dalhana, while commenting on Sushruta Samhita (Sutrasthana 1/6), explains Rasayana as:

रसानां रसरक्तादीनाम् अयनमाप्यायनं रसायनम् ।
रसवीर्यविपाकादीनां आयुःप्रभृत्तिकारणानाम् अयनं विशिष्टलाभोपायः रसायनम् ।

Accordingly, Rasayana is that which nourishes and replenishes the primary tissues beginning with Rasa and Rakta, or that which promotes longevity and stabilizes youthfulness through its properties such as Rasa, Virya, and Vipaka. [24]

The same interpretation is reiterated by Dalhana in his commentary on Sushruta Chikitsasthana (27/1–2). Sharangadhara defines Rasayana as:

रसा रसरक्तादय ईयन्ते प्राप्यन्ते अनेनेति रसायनम् ।

(Sharangdhara Samhita, Purvakhanda 4/106)

That which facilitates the proper nourishment and attainment of Rasa, Rakta, and subsequent tissues is termed Rasayana. ^[25]

Arunadatta, while commenting on Ashtanga Hridaya (Uttaratantra 39/2), states that Rasayana is the therapy through which the Rasa and other Dhatus are adequately nourished. The Kairali commentary further defines Rasayana as that which increases all Dhatus from Rasa to Shukra. ^[26]

Sharangadhara also states:

रसायनं च तज्ज्ञेयं यज्जराव्याधिनाशनम् ।

(Sharangdhara Samhita, Purvakhanda 4/13)

Thus, Rasayana is that which destroys ageing (Jara) and disease (Vyadhi). The same definition is accepted in later texts such as Vaidya Kaustubha. Gangadhara, in his commentary on Charak Samhita (Sutrasthana 30/15), explains that Rasayana continuously nourishes the Dhatus, thereby replenishing and strengthening them. ^[27]

CLASSIFICATION OF RASAYANA:

A. Based on Mode of Administration (Charak Samhita, Chikitsasthana 1/1/16)

1. Kutipravesika Rasayana

2. Vatatapika Rasayana

Kutipravesika Rasayana is administered while the individual resides in a specially constructed, closed cottage (Kuti), whereas Vatatapika Rasayana is administered while the individual is exposed to air (Vāta) and sunlight (Ātapa). Thus, the former is an indoor and the latter an outdoor method of administration. ^[28]

Dronipravesika Rasayana is a modified form of Kutipravesika, wherein the individual stays inside a wooden trough (Droni) made of Palasha wood and consumes a milk-based diet for six months. ^[29]

B. Based on Mode of Action (Dalhana)

1. Samshodhana Rasayana – Eliminates aggravated Doṣas

2. Samshamana Rasayana – Pacifies accumulated Doṣas

Both types are curative in nature; Samshodhana expels morbid Doṣas, while Samshamana restores equilibrium by pacification. ^[24]

C. Based on Utility (Dalhana)

1. Kamyā Rasayana

2. Naimittika Rasayana

3. Ajastrika Rasayana

Kamyā Rasayana is further subdivided into:

- **Pranakamiya** – to enhance longevity
- **Shrikamiya** – to promote vitality and prosperity
- **Medhakamiya** – to enhance intellect

Naimittika Rasayana is disease-specific rejuvenation therapy. Ajastrika Rasayana includes daily consumption of substances like milk and ghee to promote immunity and overall health. ^[24]

D. Classification According to Sushruta

1. Sarvopaghata Shamaniya – Counteracts disease processes

2. Medhayuskamiya – Enhances intellect and lifespan

3. Svabhavavyadhi Pratishedhaniya – Delays natural diseases like hunger, thirst, ageing, and death

4. **Nivratta Santapiya** – Restores physical and mental faculties post-disease
Sushruta further classifies Rasayana based on benefits into five types: ^[30]

1. **Dirghayushkara** – Jīvanīya, Br̥mhañīya
2. **Tarunyakara** – Vayahsthapana
3. **Balakara** – Balya
4. **Medhakara** – Medhya
5. **Rogahara** – Disease-specific

Charak also describes **Acharya Rasayana**, wherein adherence to Sadvr̥tta and Swasthav̥r̥tta itself confers Rasayana benefits. ^[31]

UTILITY OF RASAYANA:

दीर्घमायुः	स्मृति	मेधामारोग्यं	तरुणं	वयः	I
प्रभावर्णस्वरौदार्यं		देहेन्द्रियबलं		परम्	II

वाक्सिद्धिं प्रणतिं कान्तिं लभते ना रसायनात् ॥

(Charak Samhita, Chikitsasthana 1/1/7–8)

Rasayana prolongs lifespan, enhances memory and intellect, promotes health and youthfulness, improves complexion, voice, strength of body and sense organs, vitality, and immunity against diseases. ^[32]

Further, Charak states:

न	जरं	न	च	दौर्बल्यं	नातुर्यं	निधनं	न	च	I
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जग्मुर्वर्षसहस्राणि रसायनपराः पुरा ।

(Charak Samhita, Chikitsasthana 1/1/78–80)

Rasayana prevents ageing, debility, disease, and even death, enabling individuals to live for thousands of years. Proper administration of Rasayana not only prolongs life but also facilitates attainment of spiritual liberation. ^[33]

Later texts such as Ashtanga Samgraha mention that Rasayana also possesses Vṛ̥ṣya (aphrodisiac) properties. Rasayana enhances complexion, strengthens sensory organs, improves immunity, counters incompatible dietary effects, prevents epidemic diseases (Janapadodhwamsa), and even overcomes conditions considered incurable. ^[34]

DISCUSSION

Ageing (Jara) is a complex, multifactorial and inevitable biological process characterized by progressive decline in structural integrity, functional efficiency, and adaptive capacity. Modern ageing theories attribute this decline to cumulative cellular damage, reduced repair mechanisms, and impaired homeostasis. These views closely parallel the Ayurvedic explanation of ageing as Dhātu-kshaya, Agni-mandya, and Dosha imbalance, particularly Vata predominance, indicating a strong conceptual convergence between classical Ayurveda and contemporary biology.

Ayurveda offers a holistic understanding of ageing by defining life (Ayu) as an inseparable union of Sarira, Indriya, Sattva, and Atma. Ageing is considered a lifelong process beginning from conception and progressing through continuous metabolic activity (Pravṛ̥tti). This concept aligns with modern life-course theories, which recognize that ageing is shaped by cumulative biological activity throughout life rather than being confined to old age alone.

The Ayurvedic descriptions of Kaya and Sarira reflect a clear understanding of anabolic and catabolic processes. Maintenance of health depends on a dynamic balance between tissue formation and tissue

breakdown. Ageing occurs when catabolic processes gradually surpass anabolic and reparative mechanisms, a concept comparable to modern observations of reduced protein synthesis, mitochondrial dysfunction, and impaired cellular turnover in ageing individuals.

Rasayana Tantra represents the core Ayurvedic approach to the management of ageing. Rather than merely extending lifespan, Rasayana aims to preserve tissue quality, enhance metabolic efficiency, strengthen immunity, and delay the onset of Jara and Vyadhi. This approach corresponds closely with the modern concept of healthspan extension. The detailed classification of Rasayana—based on administration, mode of action, and utility—highlights its individualized, preventive, promotive, and therapeutic nature.

The concept of Achara Rasayana further broadens the scope of ageing management by emphasizing ethical conduct, mental discipline, and healthy lifestyle practices. This reflects the recognition of psychosocial factors in ageing, a view strongly supported by modern research linking stress, behaviour, and lifestyle to biological ageing and age-related disorders.

Overall, the Ayurvedic concept of ageing and Rasayana therapy provides a comprehensive, holistic, and preventive framework for healthy ageing. By addressing metabolic balance, tissue nourishment, immunity, mental wellbeing, and lifestyle regulation, Rasayana offers valuable insights that complement modern gerontology and support an integrative approach to ageing and longevity.

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