



Review Article

AN AYURVEDIC & CONTEMPORARY PERSPECTIVE ON A COMPREHENSIVE APPRAISAL OF AGEING

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ABSTRACT

As well as being a *Swabhavaja Vyadhi* (natural sickness), Ayurveda has seen *Jara* or *Vardhakya* as a natural and unavoidable process. When an organ of a different system begins to degenerated and lose its anatomical and physiological capabilities over time, it is said to be ageing. This process can occur in a cell, an organ, or the entire organism. *Shareera* (physical), *Indriya* (emotional), *Satwa* (psychological level), *Agni* (metabolism), *Bala* and *Ojas* etc are influencing factors for *Jara* (ageing). The final stage of life is called *Vridhdhavastha (Jara)*. During this phase, every aspect of the body begins to degenerate, including the *Dhatu* (different anatomical tissues), the *Indriya* (sensory and motor organ), the ability to perceive, the power of speech, the power of the body, and numerous mental and cognitive functions (such as memory, intellect, reception, retention, analytic ability, etc). The *Vayu dosha* predominates throughout this phase (one of the three physiological body factors). The most noticeable physical changes at this time include ageing skin, greying hair, baldness, and a decline in physical stamina. Loss of muscle compactness, joint looseness, vitiation of *Rakta* (blood), excessive production of *Meda* (fatty tissue), failure of *Majja* (marrow) accumulation in bone, failure of production of *Shukra* (semen), and loss of *Ojas* component are examples of these pathological alterations. This article is made to explore the physiological changes during aging.

INTRODUCTION

Ageing represents structural and functional changes of an organism over its entire life span.

It is a process that goes on over the entire adult life span of any living thing with the body homeostatic & adaptive response. Age is categorised in *Balya*, *Madhya* and *Vridhdhavastha* in life span of 30 years, 31 to 60 years and above than 60 years respectively.^[1]

Physiological Changes of Aging: Ayurveda

Role of Tridosha in physiological changes of aging^[2]

The phenomenon of ageing is also related to principle of *Tridosha*. The *Tridosha* (*vata*, *pitta* and *kapha*) is the most important factor in maintenance of good health and production of disease.

Role of Agni in Physiological Changes of Aging^[3]

According to Acharya Charak, mentioned in *Grahani Chikita* i.e. When the *Agni* stops functioning, the individual dies; if the *Agni* functions normally, the individual can lead a healthy and long life. Similarly, if the *Agni* becomes vitiated the individual suffers from various diseases, and hence, the *Agni* is said to be the root cause of health and longevity.

In old age, the *Vata dosha* becomes increasingly vitiated, which causes *Vishamagni*, which inhibits digestion and results in undernutrition of the tissues. The Vitiated *Agni* play role in poor health of tissue, which causes ailments in elderly persons. As a result, *Agni* featuring *Vishamagni* is more closely associated to ageing effects.

Although the ancient text does not specifically address the part that *Dhatu* plays in the ageing process, it is made apparent that *Dhatu* quality and quantity decline with age in the classics. *Oja* (the essence of all the *Dhatu*s) is also known as *Bala*, which is responsible for resistance against diseases or *Vyadhikshamatva* (immunity) is also decreased in old age. Therefore, the

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Dhatu Kshaya and *Oja Kshaya* are also accountable for the ageing process and illnesses that affect the elderly. *Srotas* act as the transportation system of our body. Importance of *Srotas* in manifestation of the disease - If *Srotas* are in healthy state the formation of *Dosha*, *Dhatu*, and *Mala* are good, but when these *Srotas* are vitiated then *Dosha*, *Dhatu* and *Mala* also become

vitiated and body becomes diseased. *Srotovaigunya* plays vital role for the *Sammurchhana* of *Dosha* & *Dushya* at a particular site as a result disease manifest inside the body. The main cause for *Srotovaigunya* is vitiation of *Vayu* and *Vishamagni* which are prominent in old age.

Factor	Kapha Predominance	Pitta Predominance	Vata Predominance
Age	<i>Bala</i> (1-30 years)	<i>Madhya</i> (31-60 Years)	<i>Jirna</i> (above to 60 years)
Physiological changes	Helps in nourishment and growth of body tissues.	<i>Pitta</i> is basically responsible for the decay and degenerative changes due to its specific properties like <i>Ushna</i> , <i>Tikshna</i> , <i>Visra</i> , <i>amla</i> , etc. People are more prone to suffer from <i>Pitta</i> related conditions like gastritis, burning sensations, early greying of hairs etc.	The properties of <i>Vata Dosha</i> are described as <i>Ruksha</i> , <i>Laghu</i> , <i>Sheeta</i> , <i>Khara</i> and <i>Vishada</i> . So <i>Vata dosha</i> by nature, decreases luster of skin, lessens body strength, dries and decays the body and hastens ageing process.

Physiological Changes of Aging: Modern Science

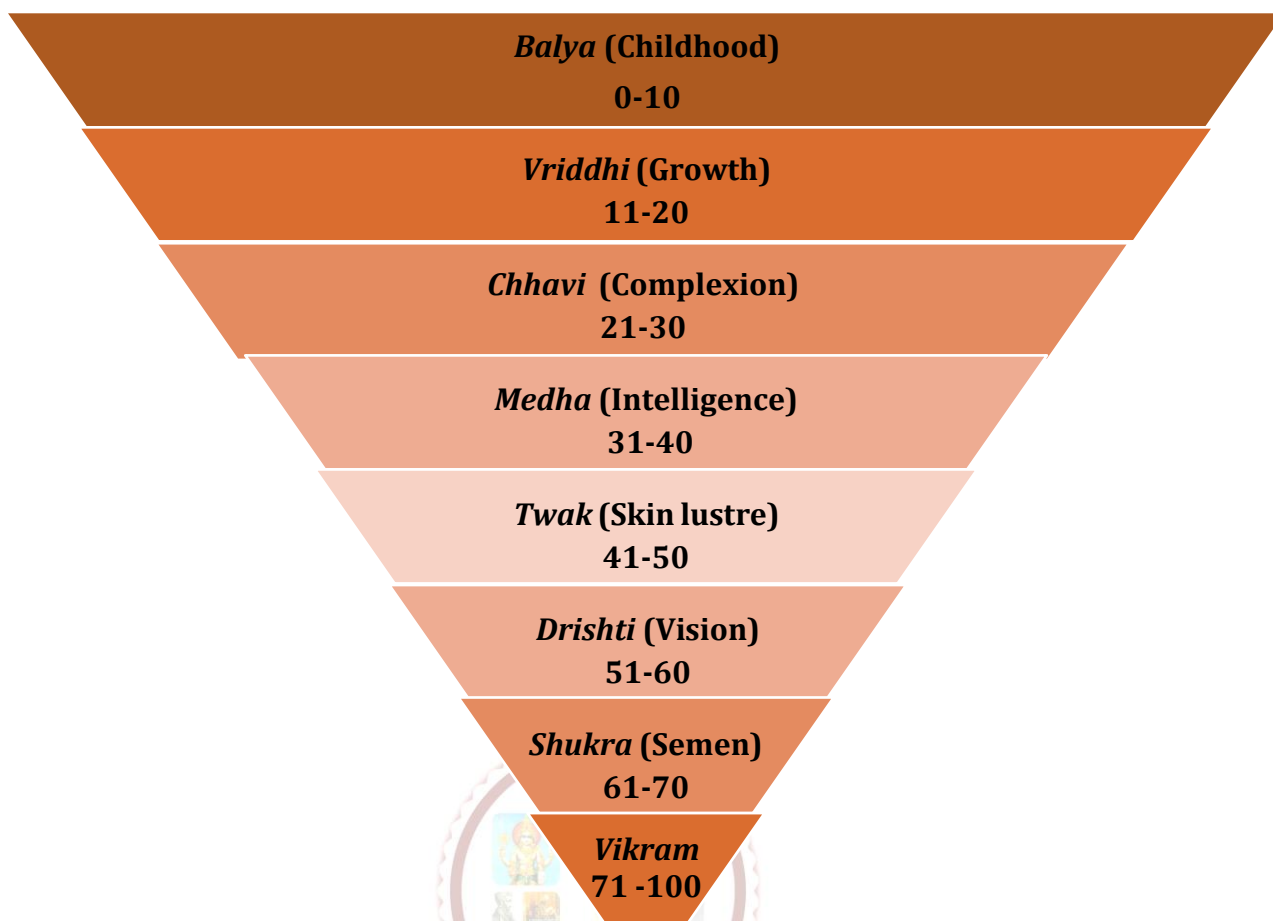
S. No.	Name of System	Physiological changes
1.	Respiratory system ^[6]	<ul style="list-style-type: none"> As people age, their ability to cough effectively, which is necessary to clean their airways, becomes less strong. The lung matures between 20 and 25 years of age, and ageing is thereafter linked to a gradual loss in lung function. Loss of elasticity causes the lungs to become rigid.
2.	Gastrointestinal System ^[7]	<ul style="list-style-type: none"> Oesophageal, gastric, and colonic motility are particularly affected by changes in gut function with age. Older persons are more susceptible to malnutrition, postprandial hypotension, dysphagia, constipation, and faecal incontinence. The loss of myenteric plexus nerve cells, which impact digestion, absorption, and the surface area of the small intestine as a result of villi degeneration, may impair nutrient absorption.
3.	Urinary System ^[8]	<ul style="list-style-type: none"> As we become older, the number of nephrons in our kidneys declines- often to half by the time we are 70 or 80- and our kidneys become less effective in concentrating. Arteriosclerosis and reduced renal blood flow Contribute to a drop in the glomerular filtration rate, which also happens to be accompanied with a decrease in urine bladder size and detrusor muscle tone. A greater need for urination could result from these changes. After age 40, the likelihood of developing BPH rises, reaching a prevalence of 8% to 60% by the age of 90.

4.	Endocrine System^[9]	<ul style="list-style-type: none"> • The gradual loss of muscle and bone density and the rise in adipose tissue that are observed in many elderly people may be related to declining GH levels. • Age-related variations in sleep patterns may be influenced by a decrease in melatonin release. • As people age, their thyroid hormone secretion slightly declines. Immune system damage to the thyroid gland brought on by ageing is possible.
		<ul style="list-style-type: none"> • Older people's kidneys produce less renin, which makes it harder for them to react when blood pressure drops. • Older males eventually produce less reproductive hormones, and women go through menopause. • In older people, insulin resistance may prevent the conversion of glucose into energy.
5.	Reproductive System^[10]	<ul style="list-style-type: none"> • The menopause age for women is 51 years. Ovulation stops and estrogen levels drop by 90% after menopause. • After menopause, women are more vulnerable to osteoporosis. • After 30 years of menopause, FSH and LH levels gradually decline, which results in a decrease of breast muscle tone. • With age, the rate of sperm production and testicular size decline.
6.	Nervous System and sense organs^[11]	<ul style="list-style-type: none"> • The central nervous system ages, which causes irreversible function loss and a decline in one's capacity to do daily tasks. • Memory issues become more prevalent after the age of 40. • The body's reflexes, sensory, and motor responses become sluggish. • Elderly individuals frequently experience hearing and visual impairment.
7.	Musculoskeletal system^[12]	<ul style="list-style-type: none"> • Arthritis is a common painful ailment that develops with ageing and causes a reduction in joint mobility. • Sarcopenia, or the loss of muscle, is a lifelong process that begins around the age of 30. The volume of muscle tissue as well as the quantity and size of muscle fibres steadily decrease during this process.

DISCUSSION

The Ayurvedic term for explaining the aging process is coined as "*Parinama*," and it occurs while being constantly influenced by "*Kala*," or the passage of time. *Kala* is hence in charge of *Parinama*. As a result, *Kala* or *Parinama* were acknowledged by Ayurveda as probable causes of degenerative disease entities.^[13]

An intriguing diagram of the biological components that are lost as a result of ageing is presented in the *Sharangadhara Samhita* for the various decades of life. Modern science defines ageing as the progressive breakdown of the body's homeostatic and adaptive mechanisms, while Ayurveda views *Jara* (old age) as a natural sickness.^[14]

Bio-values Decline & Age in years

Even though many theories have been proposed to explain how the body ages, contemporary research has found that all ageing is multifactorial. When molecular harm to cells exceeds their capacity for repair, the ageing process is accelerated. It entails lifelong exposure to damaging outside stimuli as well as an inbuilt biological plan of cellular senescence.

Ageing can be slowed down by practising Ayurveda. Before beginning to treat patients, it is crucial to understand their age or, more accurately, life expectancy. Most chronic diseases are greatly exacerbated by ageing. After birth, a person must develop into an adult and eventually pass away, yet nobody wants to get old or pass away. Being a human, it is in our nature. All of these unappealing conditions, according to Ayurveda, are diseases since they bring about suffering in people, and diseases are anything that cause people to suffer.

To maintain *Dhatusamyā* (homeostasis), which has been referred to by a number of different principles, Ayurveda adopts a holistic strategy. When it manifests, ageing is viewed as an illness that can happen at any time. An effective geriatric care plan nowadays is likely to include *Rasayana* therapy, a good diet, *Dinacharya*, *Ritucharya*, *Sadvritta*, *yoga*, and

perhaps *Panchkarma* (on the basis of their *Prakriti*).

CONCLUSION

Ayurveda gives importance for geriatric care, since it is one among the branch of *Ashtanga Ayurveda*. It has a good scope in present day scenario. Ayurveda, has got the potential for prevention of diseases by health promotion and management of diseases occurring in old age. It is a unique therapeutic methodology to delay ageing and to minimize the intensity of problems occurring this degenerative phase of one's life. Future aging can be reduced before the occurrence of old age. It cannot be prevented but can be delayed by the proper use of *Rasayana*. The tissue-specific *Rasayana* drugs can be administered along with the treatment of the underlying disease to enhance the tissue strength and disease-combating power so that faster and better relief may be provided and recurrences may be prevented.

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