



Review Article

GERIATRICS THROUGH AYURVEDA: A REVIEW

Kadam Krishna Namdeo^{1*}, Jadhav Viraj Vilas²

¹Assistant Professor, Department of Rognidan and Vikriti Vigyan, R. A. Podar Medical Ayurved College, Worli, Mumbai, Maharashtra, India.

²Associate Professor, Department of Rachna Sharira, R. A. Podar Medical Ayurved College, Worli, Mumbai, Maharashtra, India.

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ABSTRACT

The World population of the elderly is increasing significantly and by the year 2050, adults older than 65 years will comprise 1/5th of the global population. In India 3.8% of the population are older than 65 years of the age. According to an estimate the likely number of people in India by 2016 will be around 113 million. Approximately 1 in 10,000 persons in developed countries lives beyond 100 yrs. Present day statistics indicate that under ideal socio-economic conditions mean age of death is not far from 85 yrs. Women have life-span about 5yrs longer than men and about 5 times as many women as men reach 100 yrs. Three factors that affect the life-span are: Heredity, Diet and Ionizing Radiation. Changes with age are universal, intrinsic, progressive and deleterious. All cells engage in four basic major activities-Production of energy needed for vital cell processes, synthesis of proteins, both structural and enzymatic, maintenance of chemical and osmotic homeostasis, reproduction or replication. Ayurveda has a focused branch of medicine called *Rasayana* (Rejuvenation) which exclusively deals with the problems related to ageing and methods to counter the same. Geriatrics or *Jara Chikitsa* or *Rasayana* in *Ayurveda* is a method to control/slow down/arrest the ageing process in the human being during the degenerative phase in one's life. For present article author has collected many references regarding how to enhance concept of Geriatrics through principles of Ayurveda with respect to disorders in *Jara avastha* and *Rasayana* therapy.

KEYWORDS: Geriatrics, *Ayurveda*, *Rasayana*, Aging, Rejuvenation.

INTRODUCTION

The Biologists define ageing as "the sum total of all changes that occur in a living organism with the passage of time and lead to a decreasing ability to survive stress, functional impairment and death". If the functional capacity at the age of 30 is taken as 100% (*Sampoornata* in *Ayurveda*) then there is a measurable decline at 60 years: ^[1]

1. Nerve conduction velocity - 15%
2. Resting metabolic rate - 20%
3. Cell water - 25%
4. Cardiac output - 30%
5. Glomerular rate - 40%
6. Vital capacity of lungs - 50%
7. Renal plasma flow - 70%
8. Maximum voluntary ventilation - 80%

It is estimated that on an average 30 brain cells die every minute. The urge to live, the fear of death, the desire for youth, the distaste for old age and the quest of rejuvenation have always interested mankind from antiquity to modern times. The subject is connected

with longevity (as distinct from senility) since those who are naturally long-lived are thought not merely to live long but to retain their vigour as well. According to the Hindu mythology, there has been a progressive decline in human lifespan from

1. *Krutayug* - 400 years
2. *Tretayug* - 300 years
3. *Dwaparyug* - 200 years
4. *Kaliyug* - 100 year

A person who takes suitable diet and practices self control lives full span of 100 years or 36000 nights, without illness. Ayurveda divides human life into: ^[2]

1. *Balyavstha* (Childhood), which extends up to age 16 years.
2. *Tarunyavastha* (Adult age), which extends from age 16 to 60 years.
3. *Vridhāvstha* (old age), "wherein after 60 to 70 yrs the body elements, sense organs, strength, energy, manhood, velour, memory,

understanding, speech and discrimination begin to decay.

Signs and symptoms of ageing are the strength and energy of man dwindle day by day, the organs and virility becomes weak, the hair turns silvery white and begins to fall off and the parched skin looks shrivelled. The skin sags down and becomes flabby; the respiration becomes laboured and painful etc. *Rasayana* therapy^[3] is a specialized branch of clinical medicine in *Ayurved* aimed at preventing effects of ageing. It attains longevity, improved harmony and intelligence, freedom from disorders, youthful vigor, and excess of luster, complexion and voice, optimum strength of physique and senses, command over language, respectability and brilliance. The leading cause of mortality among aged people comprises respiratory problems, heart diseases, cancer and stroke. Significant causes of morbidity among this group is chronic inflammatory and degenerative conditions such as Arthritis, Diabetes, Osteoporosis, Alzheimer's disease, Depression, Psychiatric disorders, Parkinson's disease and age related urinary problems.

The purpose of the present article is to enlighten the basic concept of *Jara Chikitsa* and

Rasayana therapy with respect to Geriatrics. With this one can be able to identify the stage of Geriatrics in one's life. And further will be able to control/slow down/arrest the process of ageing during the degenerative phase in one's life.

MATERIALS AND METHODS

The article is based on a review of Ayurvedic texts. Materials related to concept of Geriatrics and related disorders, *Rasayana* therapy and other relevant topics have been collected. The main Ayurvedic texts used in this study are *Samhita grantha* (texts). For modern concept of Geriatrics, referred textbook of modern medicine, searched various websites and reports to collect the information on the relevant topics.

Demographic trends

The World population of the elderly is increasing and by the year 2050 adults older than 65 years will comprise 1/5th of the global population. In India 3.8% of the population are older than 65 years of the age. According to an estimate the likely number of people in India by 2016 will be around 113 million.

Table 1: Observed and Forecasted Percentages of the Elderly (65+years) ^[4]

Countries/Regions	Year1950	Year 2000	Year 2050
World	5.0	6.9	19.3
Africa	3.2	3.3	6.9
Latin America	3.7	5.4	16.9
China	4.5	6.9	22.7
India	3.3	5.0	14.8
Japan	4.9	17.2	36.4
Europe	8.2	14.7	29.2
USA	8.3	14.7	29.2
Year	Population growth rate	Growth rate of elderly (above 60 yrs)	
1961-1971	2.17	3.23	
1971-1981	2.83	2.71	
1981-1991	2.55	3.39	
1991-2001	2.02	2.89	

Source: United Nations, 2009

Health Scenario in Geriatrics

Morbidity ^[5]

1. Injuries: 3-5% fractures, 5-10% are soft tissue injuries.
2. Long lies: 40-50% unable to get up.
3. Quality of life: fear of falling.

Mortality

1. Sixth leading cause of death in elderly.
2. 70% of all deaths due to fall occurring in 12% of the population age 65 years and older.

Musculoskeletal Disorders

- Musculoskeletal disorders predominate in the older adults and are major cause for chronic

disability and health care utilization in the geriatric age group.

- Disorders of Musculoskeletal system impairs
 1. Mobility
 2. Interfering with activities of daily living and
 3. Functions

Common musculoskeletal disorders found in geriatric age group are

1. Osteoarthritis (*Sandhivata*)
2. Rheumatoid arthritis (*Amavata*)
3. Spondylosis (*Manya-Prishthagata Vata*)
4. Osteoporosis(*Asthi soushirya*)
5. Back pain (*Katishoola*) etc.

6. Fragility fractures have doubled in the last decade. 40% of all women over 50 yrs will an osteoporotic fracture.
7. The number of the hip fractures will rise from about 1.7 million in 1990 to 6.3 million in 2050.

Formulations commonly used in musculoskeletal disorders [6]

1. *Rasnasaptak kwatha*
2. *Vayugutika*
3. *Sinhanad guggulu*
4. *Guggulu tiktaka ghrita*
5. *Vishagarbha taila*
6. *Aswagandha Churna*
7. *Maharasnadi Kwatha*
8. *Yograja Guggulu*
9. *Dashmoola Kwatha*
10. *Vaiswanara Curna*

Plants used in musculoskeletal disorders [7]

1. *Zingiber officinale* (*Sunthi*)
2. *Tinospora cordifolia* (*Guduchi*)
3. *Pluchea lanceolata* (*Rasna*)
4. *Sida cordifolia* (*Bala*)
5. *Alpinia galanga* (*Kulanjan*)
6. *Ricinus communis* (*Eranda*)
7. *Terminilia chebula* (*Hirada*)
8. *Semicarpus ancardium* (*Bhallatak*)
9. *Boerhaavia diffusa* (*Punarnava*)
10. *Commiphora mukul* (*Guggulu*)

These ten plants are frequently used in formulations as well as in clinical practice.

Medicated oils for massage in musculoskeletal disorders: [8]

1. *Dhanwantar taila*
2. *Kshirabala taila*
3. *Mahamashadi taila*
4. *Mahanarayana taila*
5. *Narayana taila*
6. *Nirgundi Rasnadi taila*
7. *Panchsneha taila*
8. *Pinda taila*

Different procedures

Common procedures, practiced in Ayurveda for the management of these disorders are-

1. *Snehana* (oleation)

2. *Swedana* (sudation) - *Valuka Swedana, Nadi Swedana* and *Patrapinda Pottali Swedana*
3. *Vasti* (medicated enema)
4. *Kativasti* (Pouring and keeping of lukewarm oil at lumbar region)
5. *Januvasti* (Pouring and keeping of lukewarm oil at knee joint)

Preventive measures

1. *Rasayana*^[9,10] (rejuvenation)
2. *Panchkarma* (bio cleansing)
3. Dietary regimen
4. Lifestyle practices
5. Use of *Rasayana* drugs and *Panchkarma* procedures can prevent the physiological changes in bones and joints occurring due to ageing.
6. Inclusion of Dietary regimen and lifestyle practices also prevents musculoskeletal disorders.
7. *Acharya Rasayana* (Behavioral regimen)^[11]

Evidence Based Research

1. *Sunthi* (*Zingiber officinalis*) and *Guggulu* (*Commiphora mukul*) in Rheumatoid arthritis- *Sunthi* + *Guggulu* in equal parts

Dose - 2 gm TDS with *Valuka sweda* (dry fomentation)

Course - 6 weeks

Studied on- 497 patients

Result - very good result was found in 67% patients.

2. In Rheumatoid Arthritis

Mahayogaraja Guggulu (1 gm) + *Vaishwanara churna* (3 gm) twice daily *Sinhanada Guggulu* (0.5 gm) at bedtime Studied - 518 patients.
Result: 60% patients had shown improvement.

3. In Rheumatoid Arthritis

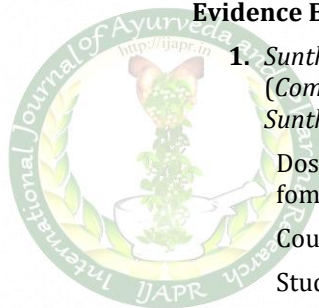
Aswagandha (*Withania somniferae*) *churna* - twice daily *Eranda taila* - 15 ml at bedtime Along with *Valuka sweda* (hot fomentation with warm sand) Course - 6 weeks.

Result: 57% of the patients have shown improvement.

4. Guggulu in Osteoarthritis

Concentrated extract of *Guggulu* in capsule form (500 mg) thrice daily studied in 30 male and female patients each.

Result: Significant improvement in both subjective and objective parameters and no side effect was seen during the trial.



Triad of musculoskeletal

1. *Yograj Guggulu* a herbo - mineral formulation with *Guggulu* as major ingredient is the most commonly used in all musculoskeletal disorders.
2. Disease activity controlled in more than 50% of cases with *Yograj Guggulu*.
3. Ginger is one of the major ingredients in more than 75% formulations.
4. In Japanese studies a compound derived from its rhizomes has been shown inhibit prostaglandin synthesis even better than indomethasin.
5. *Eranda* (*Recinus communis*) has been emphasized as most important therapeutic agent in musculoskeletal disorders.
6. Recent study at AIIMS shows that *Eranda* oil in non-purgative dose could control disease activity of more than 40% of cases of Rheumatoid Arthritis.

Rasayana therapy in immuno compressive disease

In the immuno compressive disease like AIDS, there is decrease of *Saptadhatu* leading to decrease in *Ojas*. Due to *Asar* (without key part/ faulty) *Saptadhatu* production, there is decrease in immunity power, which is nothing but *Ojas - vikruti*. The drug which improves *Sarayukt Dhatu* production, in turns causes *Ojas vruddhi* (increase) are *Rasayana dravyas*. Also in allergic disease, the immunity power is decreased. Here also there is great role of *Rasayana dravyas*.

Single Rasayana drugs for some specific Disease conditions

1. **Diseases of eye:** *Jyotishmati* (*Celastrus pauciculata*), *Triphala* (*Three myrobalans*), *Shatavari* (*Asparagus racemosus*), *Yashtimadhu* (*Glycyrrhiza glabra*), and *Amalaki* (*Emblica officinalis*).
2. **Diseases of Heart:** *Shaliparni* (*Desmodium gangaticum*), *Arjuna* (*Terminalia arjuna*), *Guggulu* (*Commiphora mukul*), *Pushkarmula* (*Inula racemosa*).
3. **Skin diseases:** *Bhallataka* (*Semecarpus anacardium*), *Vidanga* (*Embelia ribes*) and *Bakuchi* (*Psoralea coryfolia*).
4. **Rasayana for overall Health:** *Guduchi* (*Tinospora cordifolia*), *Amalaki* (*Emblica officinalis*), *Ashwagandha* (*Withania somnifera*), Cow's milk and *Takra*.
5. **Asthma:** *Shirisha* (*Albezia lebeck*), *Agastya* (*Sesbania grandiflora*), *Haridra* (*Curcuma longa*), *Haritaki* (*Terminelia chebula*).
6. **Arthritis:** *Rasona* (*Allium sativum*), *Sallaki* (*Boswellia serrata*), *Guggulu* (*Commiphora mukul*),

Ashwagandha (*Withania somnifera*) and *Sunthi* (*Zinziber officinale*).

7. **Neuropathies:** *Rasona* (*Allium sativum*), *Guggulu* (*Commiphora mukul*), *Bala* (*Sida cordifolia*), *Ashwagandha* (*Withania somnifera*).
8. **Diabetes:** *Shilajitu* (*Black bitumen*), *Amalaki* (*Emblica officinalis*), *Haridra* (*Curcuma longa*), *Tejpatra* (*Cinnamomum tamala*), *Methika* (*Trigonella foenum graecum*).
9. **Lipid disorders:** *Guggulu* (*Commiphora mukul*), *Haritaki* (*Terminelia chebula*), *Pushkaramoola* (*Inula racemosa*), *Vacha* (*Acorus calamus*).
10. **Hypertension:** *Rasona* (*Allium sativum*), *Sarpagandha* (*Rauwolfia serpentina*), *Aswagandha* (*Withania somnifera*), *Jatamansi* (*Nardostachys jatamansi*).
11. **Brain and Memory Disorders:** *Brahmi* (*Becopa monnieri*), *Mandookaparni* (*Centela asiatica*), *Jyotishmati* (*Celastrus pauciculata*), *Kapikachhu* (*Mucuna pruriatus*), *Tagara* (*Valeriana wallichii*).

DISCUSSION

The *Rasayana* are primarily of promotive value and are essentially meant to rejuvenate the body and mind to impart longevity against ageing and immunity against disease. From promotive treatment, one attains longevity, memory, intelligence, and freedom from disorders, youthful age, and excellence of luster, complexion and voice, optimum strength of physique and sense organs, successful words, respectability and brilliance. *Rasayana* (promotive treatment) means the way of attaining excellent *rasa* etc. [9]

A) As per scope of Use: [12]

1. **Ajastrika Rasayana** (Help Nutrition)
Example - *Shatavari* (*Asparagus racemosus*), *Dugdha* (Milk of cow), *Ghrta*.
2. **Kamya Rasayana** (promotor of normal health)
Pranakamya (Help to promote vigor, vitality, promoter of life vitality and longevity).
Medhakamya (Promotor of Intellect).
Srikamya (Promotor of complexion and luster).
Example - *Shankhapushpi* for *Medha*.
3. **Naimittika Rasayana** (Promoter of specific vitality in specific disease).
Example - *Shilajeeta* for *Prameha*, *Tuvaraka* for *Kushtha*.

B) As per method of Use: [13-15]

1. **Vatatapika Rasayana** (Outdoor regimen)
2. **Kutipravesnik Rasayana** (Indoor regimen)

C) As per contents of Rasayana: [13]

1. **Aushadha Rasayana** (Drug Rasayana) e.g. *Guggulu*, *Bhallataka*, *Guduchi*.

2. *Ajastrika Rasayana* (Dietary *Rasayana*) e.g. *Ghrta, Dugdha*.
3. *Acharya rasayana* (Conduct *Rasayana*) e.g. *Sadachara* etc.

D) According to Satmya

1. *Rutu satmya* -*Adana kala* -*Sheetaviryadi* and *Laghu rasayana* like *Amalaki*.
-*Visargakala* -*Ushanaveerya* and *Guru Rasayanas* like *Bhallataka*.
2. *Desha satmya* - *Sadharana* - Simple *Rasayana* drug of modest effect.
- *Jangal* - *Snigdoshna* i.e. warm and fatty *Rasayana*.
- *Aanup* - *Rukshoshna* i.e. warm and coarse dry *Rasayana*.

Rasayana drugs for specific Dhatu or tissues promotive aspect

Rasayana According to Different Age groups as described by *Acharya Sharangdhara* ^[16]

Decade of age in Year	Desired effect	Suitable <i>Rasayna</i> drug
1-10	<i>Balya</i> (strength)	<i>Vacha, Suvarna</i>
11-20	<i>Vrudhi</i> (growth)	<i>Ashwagandha, Bala</i>
21-30	<i>Chavi</i> (beauty)	<i>Amalaki lauha</i>
31-40	<i>Medha</i> (intellect)	<i>Shankapushpi, Jyotishmati</i>
41-50	<i>Tvaka</i> (skin health)	<i>Bhringaraja, Bakuchi</i>
51-60	<i>Drushti</i> (vision)	<i>Saptamrita lauha, Jyotishmati</i>
61-70	<i>Shukra</i> (sex)	<i>Atmagupta, Ashwagandha</i>
71-80	<i>Vikrama</i> (physical strength)	<i>Ashwagandha, Shatavari</i>
81-90	<i>Budhhi</i> (wisdom)	<i>Rasayana</i> therapy may not be effective
91-100	<i>Karmendriya</i> (locomotor activity)	

CONCLUSION

Ayurveda has provided considerable emphases on the presentation of ageing process and *Rasayana* therapy. It provides an ample opportunity to improve the quality of life among the aged. *Rasayana* helps in formation of *Shrestha* (predominant) *Rasadi Dhatu*. *Rasayana dravyas* are rich in antioxidants which removes free radical from body. Free radicals in body produces progressive damage to body tissue and play important role in developing many disease like cardiovascular disease, neurogenerative disorders etc. *Rasayana* revitalizes and rejuvenates functional dynamics of body systems. It promotes good quality body tissues. Hence as an anti oxidant activity, the *Rasayana karma* must be taken into account.

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***Address for correspondence**

Dr. Kadam Krishna

Madhukar Gacche, Dr.Ambedkar nagar, near fire station road, Nanded-431602, Maharashtra, India

Mobile: 09820343872,

08888888276;

Email: drkvjadhav@gmail.com