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**CONCEPT OF AGE SPECIFIC RASAYANA WITH SPECIAL REFERENCE TO
GERIATRIC NUTRACEUTICALS**

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ABSTRACT

Rasayana is one of the eight clinical speciality branches of Ayurveda. Rasayana deals with drugs, formulations, food, and lifestyle indicative of anti- or rather delaying aging effects. Along with rasayana, Ayurveda has given utmost emphasis for the maintenance of pathyaaahar. Nutraceuticals is a food that provide health benefits including prevention and cure of disease. In Ayurveda such approaches, collectively called as Rasayana, are proclaimed to cause qualitative improvements at cellular and molecular levels eventually leading to delay in aging process. Ayurveda describes aging as the swabhava or nature of human being. Sarangadhar Samhita describes a particular scheme of biolosses in a ten-decade frame. In present study various rasayana drugs which are useful in delaying the biolosses in ten decade frame will be discussed in detail. Also what modification of diet should be done during old age will be presented in detail. The rejuvenative and rehabilitative effects with nutritional supplement and strong antioxidant property of rasayana can be utilized in the field of geriatric health care.

Rasayana is very helpful in maintaining physical and mental well-being in today's environmental condition and life style.

Keywords: Ayurveda, Rasayana, Nutraceuticals and Geriatrics

INTRODUCTION:

Ayurveda, the traditional medicine being the most ancient so far living tradition, which is being practiced in India since inception in an astangic form through its eight speciality branches. Rasayana is one of these eight clinical speciality of this classical text. Rasayana therapy of Ayurveda is devoted stream of medication for uplift of longevity, memory & intelligence, youthfulness, excellence of lustre & voice, immune promotive, anti-degenerative and anti-ageing effects, rejuvenative health care and improving the quality of life of healthy and diseased person thus Various Rasayana drugs can be used in specific age decades of life. Rasayana replenishes the essential fluid of our body, thus preventing from diseases. The Rasayana therapy has a comprehensive scope for positive nutrition, physiological & metabolic restoration, sustenance of mental & sensorial competence. Ayurveda has given utmost emphasis for the maintenance of pathyaaahar. Nutraceuticals is a food that provide health benefits including prevention and cure of disease. Nutraceuticals are natural bioactive materials that provide physiological benefits or reduce the risk of chronic

diseases, beyond their basic nutritional function. Beside uplifting mental and physical health and rejuvenation, Rasayana therapy along with pathyaaahar plays a preventive role against all type of diseases by uplifting immunity and bio strength. Henceforth Rasayana therapy is vital component of Ayurvedic geriatrics and geriatric health care.

MATERIALS & METHODS:

In present study data related to '**Concept of Age specific rasayanaw.s.r. to geriatric nutraceuticals**' were collected from classical text, modern literature, journals, Research papers published in Pubmed, Scopemed, Dhara online and other allied databases, published seminars, etc.

Definition of Rasayana:

Rasayana is made of two words Rasa + Ayana which has following meaning [1]:

Rasa:-Parad – It has property to destroy old age and death / Sense of taste / Nutritional fluid in body / First dhatu of body

Ayana:- Nourishment (Apyayana) / Method (Upaya) / Pathway (Marg)

Rasayana refers to the means of obtaining the optimum nourishment to dhatu, as described

by Charak [2]. Sushruta said Rasayana as a drug used for stabilizing the age, promoting life span, intellect and strength and eliminate disease [3]. Sharangadhar mentioned Rasayana as the drugs which ward of old age and disease [4].

Types of Rasayana [5, 6]

As per scope of use:

1. Kamyarasayana: Which is used in healthy person for further promotion of health.

It is again of three subtypes.

- pranakamyā to promote longevity.
- srikamyā to promote body lustere.
- medhakamyā to promote mental competence.

2. Naimittikarasayana: Which is used specially in the treatment of specific

diseases ex. Shilajatu (asphaltumpunjabinum) in prameha, arjuna (terminaliaarjuna) in hridroga.

3. Ajasrikarasayana: Which is used as a part of diet as milk, ghrita (ghee), madhu etc.

On the basis of method of use:

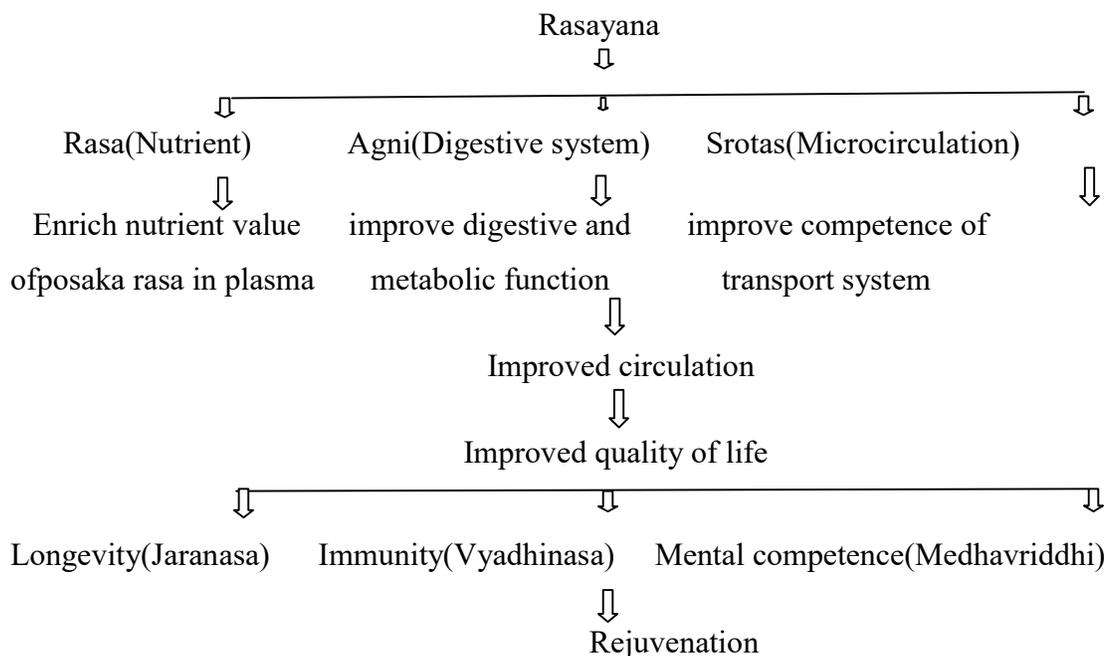
- Vatatapikarasayana i.e. outdoor regimen.
- Kutipravesikarasayana i.e. intensive indoor regimen.

As per content of Rasayana:

- AusadhaRasayana-Drug therapy
- AharaRasayana- Dietary therapy
- AcharaRasayana- Code of conduct and daily habits.

Probable Pharmacodynamics of Rasayana

Drugs: [7]



Age Specific Rasayana :

Ayurveda describes aging as the swabhava or nature of human being. During the life span, the body undergoes progressive involution and decay, leading ultimately to senescence and death. In Ayurveda, three doshas, namely kapha, pitta, vata have been described to dominate specifically during childhood, adulthood, old age respectively. The vatadosha, because of its drying and decaying effect, mainly responsible for aging.

Sarangadhar Samhita describes a particular scheme of biolosses in a ten-decade frame. A person loses his balya, briddhi, chhabi, medha, twak, dristi, shukra, vikrama, buddhi and karmendriya in 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th and 10th decades of life respectively [8]. The Rasayana therapy can be planned according to age to possibly retard the aging process. In relation to these features specific rasayana drugs based on their ras, guna, virya, vipaka and prabhav can be use in specific decades are [9] –

Decades of life	Natural biological process	Suitable rasayana drugs
1-10	Bala	Vacha, Swarna, Ghrith, Dugdha, Kashmiri, etc.
11-20	Briddhi	Bala, Ashwagandha, Kashmiri, etc.
21-30	Chhavi	Amalaki, Haridra, Lauha, etc.
31-40	Medha	Shankhapuspi, Bramhi, Jyotishmati, etc.
41-50	Twak	Bhringraj, Priyal, Haridra, Somraji, etc.
51-60	Dristi	Triphala, Jyotishmati, Shatavari, etc.
61-70	Shukra	Ashwagandha, Kapikacchu, Atmagupta, etc.
71-80	Vikrama	Amalaki, Bala, etc.
81-90	Buddhi	Bramhi, Shankhapuspi, etc.
91-100	Karmendriya	Bala, Sharkara, etc.

Preventive and Curative Measures for Geriatrics

Acharya Charaka says “He, who treats the disease before its commencement or at an early stage, experiences long-lasting happiness”. Geriatric problems are best confronted by preventive measures than curative ones. Therefore, geriatrics has to be treated much before the commencement of old age. The ideal time for treating the old age problems is youth. Discipline in young

age prevents geriatric problems. By adopting a healthier lifestyle, use of rasayana drugs with nutraceuticals the risk of a whole range of diseases can be reduced.

Some evidencebased research indicates that use of certain rasayana drugs along with dietary modification in old age leads to better quality of life and disease free individual.

Nutraceuticals:

The term “nutraceutical” was derived from “nutrition” and “pharmaceutical” in 1989 by

Stephen De Felice [10]. These are natural bioactive materials that provide physiological benefits or reduce the risk of chronic diseases, beyond their basic nutritional function. Nutraceuticals may range from isolated nutrients, herbal products, dietary supplements, genetically improved foods, processed food products [11]. Generally, nutraceutical contains vitamins, lipids, protein, carbohydrates, minerals and other necessary nutrients.

Classification of Nutraceuticals:

Nutraceutical is a broad term.

There are multiple different types of products that fall under the category of nutraceuticals [12].

1. Dietary supplements: A Dietary supplement is a product that contains nutrients derived from food products that are concentrated in liquid, capsule, pills and tablet form.

2. Functional foods: Functional food have been either enriched or fortified, a process called nutrification. This practice restores the nutrient content in food back to similar levels from before the food was processed.

3. Farmaceuticals: It is a melding of the words farm and pharmaceuticals. It refers to medically valuable compound produced from modified agricultural crops and animals (usually through biotechnology).

4. Medical foods: The FDA considers medical foods to be “formulated to be consumed or administered internally under supervision of a physician, and which is intended for the specific dietary management of disease for which distinctive nutritional requirements, on the basis of recognized scientific principle, are established by the medical evaluation”.

Nutraceuticals in Ayurveda:

Although the concept of nutraceuticals has become more popular recently, its roots can be related to the ancient medicine, ‘*Ayurveda*’. The classical texts are filled with scattered references of implication of various food products in specific disease entities. The concept of ‘*Aajasrik Rasayana*’ (general rejuvenation) deals with food products that can be consumed daily for improving quality of life by offering protection from external and internal stressors. Apart from usage of rasayana, healthy diet and following moral code of conduct are also very helpful in delaying the aging process and maintaining geriatric health. In Ayurveda three supporting pillars are described, one of which is Aahar (diet) that results in strength, complexion and longevity and maintaining the health of individual.

Nutrition in old Age: [13]

As a result of reduced BMR and physical activity, the calorie requirements are about 25%

less than those of normal individuals doing light work.

Protein: Due to decreased appetite and poor digestive capacity, old people are likely to consume less proteins and suffer from protein deficiency. The daily protein intake should be at least 1.0 to 1.4 g per kg body weight.

Fats: Since fat is a concentrated source of energy, the diet shall contain at least about 50 gm fat. Half this quantity is in the form of vegetable oils rich in essential fatty acids.

Minerals: Calcium intake should not be less than 0.5gm and the iron intake 20 gm. Since even, mild anaemia affects the health of older people due to less efficient circulation of blood, iron intake should be adequate to prevent anaemia.

Vitamins: Mild deficiencies of several vitamins occur frequently among older

people. It is therefore essential to ensure adequate intakes of all essential vitamins. It is essential to include 400 IU of Vitamin D as it will help in the absorption of calcium and to prevent osteoporosis.

Water: The importance of adequate fluid intake so as to maintain the volume of urine excreted at a minimum of 1.5 litres is not generally recognised. Water can be consumed as such or in the form of butter milk, fruit juices, porridge, soup etc. during summer season.

Roughage: Adequate intake of soft unavailable carbohydrates in the form of tender vegetables and fruits should be ensured to avoid constipation. The senile intestinal mucosa does not tolerate fibre from mature vegetables and bran of cereals.

Diet modification in old age: [14]

Dietary modification	Reason
Food must be soft, easily chewable	Problem of dentition, fallen teeth or dentures
Food should be easily digestible	Decreased production of digestive enzymes
Food rich in fibre should be given	To prevent constipation and cholesterol level. To Prevent colon cancer.
Coffee, cola and tea should be Restricted	May result in insomnia due to over stimulation
Calcium rich foods like milk should be given	To compensate the bone loss and reduce the incidence Of osteoporosis.
Green leafy vegetables can be given liberally	Source of Nutrients like carotene, calcium, iron, riboflavin, folic acid and vitamin C besides supplying fibre, rich in anti-oxidants
Clear soup at the beginning of the Meal	Aids digestion
Small and frequent meals instead of Three heavy ones	Favours more complete digestion and free from distress
A glass of hot milk just before going to bed	May induce sleep
Heavy meal at noon and light Evening meal	Sleep is less likely to be disturbed
Too much sweet with lot of fats and sugar should be avoided	Too much of sugar may cause fermentation, discomfort due to indigestion and cause tooth ache and increase cholesterol level. May lead to obesity.
Plenty of fluid	To prevent dehydration and constipation

Some useful Rasayana in Old age:

Chyavanprasha: General health and prevention of respiratory disorders, enhances immunity

Brahma Rasayana: Protection from mental stress

ArjunaKshirapaka: Cardio protection

RasonaKshirapaka: Cardio protection

ShilajatuRasayana: to manage Diabetes mellitus

Brahmighrit: Improves memory in young and old

Medhyarasayana: Enhances memory, intellect and grasping power and helps in relieving the anxiety.

Some evidence based research in Rasayana:

Ghrit: Being lipid in nature can cross blood brain barrier thus endorsing the mental development. As kapha is dominated in childhood age thus helps in optimum physical growth & ghrit also helps in digestion.

Haridra: Haridra is blood purifier, rejuvenator of skin & rectifies skin by modulating redox status of cell as curcumin binds with iron and increase the expression of intracellular glutathione along with suppression of lipid peroxidation.

Amalaki: *E. officinalis* tannoids have reported to enhance ROS scavenging activity

resulting reduction in lipid peroxidation [15]. Amalaki significantly exhibits adaptogenic, antistress, immunopotentiating and memory facilitating effects [16]. Amalaki also has Free radical scavenging activity [17]. Emblicanin –A and B enriched fraction from the fresh juice of the fruits has been shown to increase concentrations of both frontal, cortical and striatal concentrations of free radical scavenging enzymes with concomitant decrease in lipid peroxidation in these brain areas [17].

Shatavari: It was reported to have antioxidant activity in various models. IC50 values of plant extract was reported to be 225.31, 888.44, 809.22 and 422.97 mg/ml for scavenging of DPPH, nitric oxide, lipid peroxidation and ferry bi-pyridyl complex, respectively [18].

Vacha: The Methanolic extract of vacha leaves has strong inhibitory action (greater than 70% at 100mg/ml) on the enzyme acetyl cholinesterase [19]. Due to the presence of phenolic and flavanoid content, the aqueous extract of rhizome shows better free radical scavenging and antioxidant. Ethanolic (50%) extract of *A. calamus* rhizomes has proved as neuroprotective [20, 21].

Ashwagandha on the process of aging: Root powder of Ashwagandha (*Withania somnifera*) was administered in the dosage of

two tablets three times daily with milk for one year showed statistically significant increase in haemoglobin, RBC count, hair melanin and seated stature and decrease in serum cholesterol and ESR [22].

Tripahala: Alcohol extracts of Triphala are found to be strong anti-oxidants and Antilipid peroxidation effect. Triphala was also effective in preventing superoxide-induced haemolysis of red blood cells [23]. Antioxidant activities of the Methanolic extracts has shown free radical scavenging assays [24]. Triphala possess statistically significant DPPH free radical scavenging activities. It shows strong superoxide radical scavenging activities (In vitro) [25].

Multi-faceted protective role of Chyawanprasa: Chyawanprasa showed significant immunomodulatory activity (decrease in Ig G, C3 and C4 levels in patients of recurrent cough and cold), cytoprotective action (cancer patients receiving radiation therapy showed a protective role against radiation induced tissue damage) and Geno protective action (significant reduction in Mitotic Index (MI) and Chromosomal Aberrations (CA) [26].

CONCLUSION:

The rejuvenative and rehabilitative effects with nutritional supplement and strong antioxidant property of rasayana can be

utilized in the field of geriatric health care. Rasayana is very helpful in maintaining physical and mental well-being in today's environmental condition and life style. In present scenario it has a vital role to serve mankind through improvement in the body-mind-spirit system. Nutraceuticals offers health benefits such as; prevention of infectious disorders, improves mental strength, maintain circulatory process and improve physical strength. Thus the traditional nutraceuticals like Chyawanprasa, Brahma rasayana, Phalaghrita, Arjunaksheerpaka, Shatavarighrit, Rasona-ksheerpaka etc. along with diet modification is very helpful to achieve the physical, mental well being in old age.

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