

## ROLE OF NUTRITION IN *JARA AWASTHA*

Punit Dongre<sup>1</sup>, Salil Jain<sup>2</sup>, Vivek Sharma<sup>3</sup>, Nitin Ujjaliya<sup>4</sup>

<sup>1</sup>M.D. Scholar, <sup>2</sup>Guide and Lecturer, Dept. of Samhita-Siddhant,

<sup>3</sup>Co - Guide and Lecturer, Dept. of Kayachiktsa,

<sup>4</sup>Lecturer, Dept. of Dravyaguna,

Pt. Khushilal Sharma Government (Auto.) Ayurveda College and Institute, Bhopal, Madhya Pradesh, India

Email: [punitdongre@gmail.com](mailto:punitdongre@gmail.com)

### ABSTRACT

Ageing is a natural biological process which starts from initiation of life till the end of the life. The process depends on stages of life to be occurred. The changes associated with ageing are partly influenced with environment, diet, habitat, genetics, race and gender. In *Ayurveda* ageing is termed as *jara* which means that there is steady depletion of *rasadi dhatus*, perception, retention and retrieval abilities, speech and knowledge because of reduction in the qualities of *dhatus* leading to the dominance of *pitta* followed by *vata dosha*. *Ahar* ideal quantity of nourishes the *saptadhatu* which provides strength, complexion, clarity of sense organs along with maintenance of equilibrium of the body. Good nutrition plays a vital role to slow down the ageing process so that the individual enjoys physical and mental youthfulness even act older state of life. The goal of nutritional care is to help the aged in achieving a healthy purposeful and joyful independent life.

**Keywords:** *jara*, nutrition, ageing

### INTRODUCTION

*Jara* (ageing) is one of the branch among them which is described as a last phase of lifespan and it is mainly characterized by degenerative changes and depletion of *rasadhi dhatu* as well as mental and cognitive functions. These changes occur due to the vitiation of *vata* in this stage and by the influence of *kala* (time), *swabhava* (nature) which is termed as *kalaja jaraawsatha*. But the changes occur due to the deficient and unplanned dietary habits term as *akalaja jaraawastha*.<sup>1</sup> Both these types of *jaraawastha* are due to diminished potency and energy of individual day by day. The wear and tear

mechanism of body is altered in the old age and the degenerative process of body is increased and anabolic process is decreased due to the improper *agni* resulting in the decreased nourishment of *dhatus* resulting speedy ageing. In modern literature ageing is a natural phenomenon in which there is a decline at cellular level to systemic level due to the imbalanced metabolic activity of the body occurring at the different level. It can be associated with changes in lifestyle and types of food taken. Loneliness, boredom, depression and worrying about the future can lead some to neglect food

intake, less person may skip meals, and their dietary or eating habits may be poor<sup>2</sup>. Hence the dietary habit should be proper in *Jaraawastha* which decreases the intensity of symptoms an individual can p live healthy life.

In present era due to advancement technology and dependence on man has become lazy, careless & ignorant towards maintenance of general health resulting in depleted nourishment of *dhatu*s and early attainment of features of *Jara Aswastha* i.e. *Arochaka* (Anorexia), *swasa*, *kasha*, *Smritinash* (Dementia), *Manoavasada* (Depression), Stroke, *Kampavata* (Parkinson disease)

and other neurological disorders,<sup>3</sup>. Some other factors affecting the nutrition of elderly are lack of cooking knowledge, isolation, stressful life event, socio-economic problems and sexual change etc.

**Aim and Objective:** - To explore the role of nutrition in *Jara Awastha*.

**Material:** - Data are collected from various classical *Samhita* of *Ayurveda* and their commentaries, modern medicine books, published research articles, paper, journals and internet.

**Methods:** - Type of study: - Conceptual study.

**Physiological Changes In Organ:** - Physiological changes in organ which may influence nutritional status as follows<sup>4</sup>:-

Organ Function	Changes	Effect on Nutrition
Gastric function	Decreased secretion of HCL, intrinsic factor and pepsin	Decreased absorption of protein bound vitamin B12 and folate
Cardiovascular function	Blood vessel become less elastic and total peripheral resistance increase.	Prevalence of hypertension, modification of diet accordingly.
Renal function	GFR can diminish as much as 60 percent; changes in fluid and acid base balance.	Protein, sodium and potassium nutrition may be affected
Metabolic function	Impaired glucose tolerance	Requires dietary modification, exercise and oral pharmacologic agents
Neurologic function	Confusion states	Decreased synthesis of serotonin, carnitine derived from the amino acid lysine and methionine may be effective in slowing the mental deterioration in Alzheimer's disease

**Psychological Changes During Old Age:** -

- 1. Loneliness<sup>5</sup>:**- Due to this condition they are goes under depression which is harmful and wider psychological complaint of elder one . The impact of loneliness on body cause food intake worsen.
- 2. Learning And Memory<sup>6</sup>:**- learning and memory both are closely intertwined with each other and they are crucial to intellectual functioning. In old age Alzheimer's disease is common among them in which there are deficits in the encoding and retrieval process due to low consumption of folic acid in his diet.
- 3. Intelligence<sup>7</sup>:**- Studies based on Wechsler Adult Intelligence Scale (WAIS), indicated the elderly do best on information, vocabulary, and

comprehension subtests; less well on arithmetic and picture completion subtests; and worst on tests of object assembly ,block design and picture arrangement.

- 4. Sexual Change:** - In the old age there is cessation of reproduction by women and diminution of sexual activity on the part of man .Due to decline in this phase the sexual performance resulting in physical and emotional disturbance may occur, irritability, jealousy and despondency are very frequent.
- 5. Isolation:-** There is an increasing evidence that life events associated with older person are higher due to death of spouse, lack of care by younger generation, lack of friend, social maladjustment this

cause isolation that why they don't prepare food at proper time and eaten this could leads to declination of health.

- 6. Social Change:** - Older people not alone fight against the geriatric problem. Due to change phenomenon in India like nuclear family system and urban migration of the people, the rural elderly people are the most suffers due to family support. Due to this ignorance they totally depend upon family for nutritional, medical and physical need.

**Other Factor Affecting During Old Age For Nutrition<sup>8</sup>:**

- 1. Physical Disability:** - Elders may tend to walk slowly and with difficulty. Physical limitations, such as arthritis that restricts mobility, loss of vision, impaired mental function like Alzheimer's disease, prevent them to go for shopping (groceries, vegetable, fruits, etc), out eating and even go to the dining area within the house. Physical limitations can affect nutrition by affecting ease of obtaining and preparing foods.
- 2. Lack of Knowledge About Cooking:** - This is a problem particularly with men, when they need to stay alone and do not have any support for cooking food. Some person may be unwilling or be unable to cook. However, in cities some ready to eat likes cornflakes, muesli, frozen meals are available, but elders may prefer to adhere to habitual dietary patterns. For such situations, such ready to eat processed foods seldom solve the problems.
- 3. Lack of Financial Resources:** - The economic problems in old age often result in the bio psychosocial crises experienced by the elderly. The elderly persons from lower or middle economic class may live on relatively fixed incomes. During illness, if expensive medication is prescribed, many of these elderly persons are not even able to buy them and limited money is saved for future emergencies and may not be spent on their own food and nutrition.

**Diet and Nutrition:** -

The diet should be regulated considering the habitat, season, age, and according to one's digestive

capacity<sup>9</sup>. Following are the dietary guidelines during old age: -

- Diet should be delicious, nutritious, fresh and good in appearance with avoidance of salty and spicy food.
- Diet should be *Laghu* (light) and *Santarpaka* (nutritive) because the *Agni* in elders is improper.
- In daily diet all the food groups should be included (macro and micro group).
- During the mealtime of elderly, family members, friends and relatives should be with them, so they don't feel alone and enjoy meal.
- Easy to chew and easy to swallow food should be included in diet with nutritive value.
- Overeating should be avoided and eat only when hungry with proper interval of time.
- Fluid intake should be more frequent and in small amount because of decreased thirst sensation and reduced ability to conserve water and to avoid frequent urination.
- Fibre food such as grains, fruits and vegetables used in meals to reduce constipation.
- Daily intake of vegetable soup, meat soup and fruits juice are a good source of antioxidant.
- Fast food, fried food concentrated food must be avoided because its causes GIT problem and metabolic disorder.
- Limited quantity of fat food is added in diet and for digestion of fat add full cream.
- Alcoholic preparation, tobacco, smoking, betel chewing which causes many GIT and metabolic problems should be avoided
- Caffeine preparation should be avoided it causes disturbance of biological rhythm.
- Sulphur containing vegetables and food should be avoided because it causes abdominal distension and gaseous formation.
- Consumption of w-3fatty acid may help in reducing hair loss, impairment of vision, improper digestion and tissue inflammation.<sup>10</sup>

**Program Related to Elders Nutrition:** -

National programme for health care of elderly (NPHCE):- For active and healthy ageing of elderly,

Government of India initiated National programme for health care of the elderly. The services to the elderly are through community based “primary health care” approach.<sup>11</sup>

Recipe During Oldage:<sup>12-</sup>

Recipe	Reason
Pongal, idli, idiappam	Cereal pulse combination easily chewable and digested.
Tomato soup, rasam	Good appetiser, low calorific value aid indigestion.
Buttermilk, fruit juices	As they are light old people may feel comfortable.
Papaya	Due to hot in potency and has sweet vipika it's a good laxative and stimulant.
Banana	Prevent constipation
Grapes	Good for amlapitta and chronic respiratory disorder
Skimmed milk powder	High in protein and low in fat. It indicated in emaciation, debility, convalescence and all wasting disorder.
Warm milk	Induce sleep
Brown rice- moong kichari	Build all tissues by nourishing rasa or plasma and very light for digestion.
Chicken soup	Lighter for digestion and good in various muscular disease and convalescence.
Saurava <sup>13</sup>	It provides nourishment to all the seven dhatu
Payasama (kheer) <sup>14</sup>	Work as a rasayan, provides strength to body.
Peya (thin gruel) <sup>15</sup>	Increase appetite and helps in digestion and wholesome diet to all.
Jivanti saka	It is good for the eyes and mitigates all the tridosas.

❖ Source of food for psychiatric disorder in old age:-<sup>16</sup>

Neurotransmitter	Symptoms of deficiency	Food to avoid	Food to be included
Acetylcholine	<ul style="list-style-type: none"> <li>Deterioration of memory.</li> <li>Fewer dreams.</li> <li>Increased confusion</li> <li>Forgetfulness</li> <li>Disorganization</li> </ul>	<ul style="list-style-type: none"> <li>Sugar.</li> <li>Deep – fried food</li> <li>Junk food</li> <li>Refined and processed foods</li> <li>Cigarettes</li> <li>Alcohol</li> </ul>	<ul style="list-style-type: none"> <li>Organic food</li> <li>Fish like salmon, mackerel, tuna, sardine.</li> </ul>
Serotonin	<ul style="list-style-type: none"> <li>Low food</li> <li>Difficulty sleeping</li> <li>Feeling ‘disconnected’</li> <li>Apathy</li> </ul>	<ul style="list-style-type: none"> <li>Alcohol</li> </ul>	<ul style="list-style-type: none"> <li>Fish</li> <li>fruit</li> <li>eggs</li> <li>avocado, pineapple</li> <li>low fat cheese</li> <li>green peas</li> <li>nuts and seeds</li> </ul>
Dopamine	<ul style="list-style-type: none"> <li>lacking motivation and/or enthusiasm</li> </ul>	<ul style="list-style-type: none"> <li>tea</li> <li>coffee</li> <li>caffeinated drinks</li> </ul>	<ul style="list-style-type: none"> <li>almonds</li> <li>bananas</li> <li>avocado,</li> <li>vitamin c rich food</li> <li>eggs</li> <li>beans</li> <li>fish</li> <li>chicken</li> </ul>

GABA	<ul style="list-style-type: none"> <li>• Anxious</li> <li>• Irritability</li> <li>• Difficulty to relax</li> </ul>	<ul style="list-style-type: none"> <li>• Sugar</li> <li>• alcohol</li> <li>• tea&amp; coffee</li> <li>• caffeinated drinks</li> </ul>	<ul style="list-style-type: none"> <li>• dark green vegetables</li> <li>• seeds &amp;nuts</li> <li>• potatoes</li> <li>• bananas</li> <li>• eggs</li> </ul>
------	--	---	---

❖ Table of essential vitamins and minerals and source used in old age:-<sup>17</sup>

Vitamins	Deficiency	Source
Vitamin B1	<ul style="list-style-type: none"> <li>• Poor concentration and attention</li> </ul>	Whole grains, Vegetables
Vitamin B3	<ul style="list-style-type: none"> <li>• Depression</li> </ul>	Whole grains, mushrooms, cottage cheese, sardines, mackerel
Vitamin B5	<ul style="list-style-type: none"> <li>• Poor memory</li> <li>• Stress</li> </ul>	Whole grains, egg yolk, milk, lentils, sweet potatoes, peas
Vitamin B6	<ul style="list-style-type: none"> <li>• Irritability</li> <li>• poor memory</li> <li>• stress</li> <li>• depression</li> </ul>	Whole grains, milk, egg, carrots, bananas
Vitamin B12	<ul style="list-style-type: none"> <li>• confusion</li> <li>• poor memory</li> <li>• psychosis</li> </ul>	Meat, fish, dairy products, eggs
Vitamin C	<ul style="list-style-type: none"> <li>• depression</li> </ul>	Vegetables, guava, green leafy vegetables, Fresh fruit like oranges, lemon etc
Folic acid	<ul style="list-style-type: none"> <li>• anxiety</li> <li>• depression</li> <li>• psychosis</li> </ul>	Green leafy vegetables such as spinach, citrus fruits, legumes, asparagus, beets, broccoli, Brussels sprouts etc
Magnesium	<ul style="list-style-type: none"> <li>• insomnia</li> </ul>	Green vegetables, figs, avocado, black beans chickpea, nuts, seeds, seafoods etc
Selenium	<ul style="list-style-type: none"> <li>• depression</li> <li>• irritability</li> </ul>	Fish, garlic, sunflower seed, brazil nuts, whole grain, eggs, legumes etc
Zinc	<ul style="list-style-type: none"> <li>• confusion</li> <li>• blank mind</li> <li>• depression</li> <li>• loss of appetite</li> <li>• lack of motivation</li> </ul>	Oysters, nuts, seeds Fish, legumes, dairy whole grains.

## DISCUSSION

In elder's the consumption of energy rich food substance like sweet, fried or high fatty food, cereals and starch needs to be reduced because it required a good digestive power and fair activities to utilise the consummated energy.

The diet of elderly should be easily chewable due to the loss of teeth particularly if dentures are not used with high nutritive value and easy for digestion. It should be soft well cooked and should include food that needs no mastication such as

- A) Pongali, idli, idiappam which contain just 39 calories, which is a minimal amount in comparison to a healthy 2,000 calorie daily diet. It has no fat no saturated fat and no cholesterol. So, it may prevent from cardiovascular disorder and stroke.<sup>18</sup>
- B) Tomato soup contain lycopene neutralizes the oxidative damage caused by the free radical, a molecule that cause ageing. High concentration of copper in tomato soup boost to the nervous system. Potassium aids in the transmission of the nerve

signals. All these ensures mental health remain top notch.<sup>19</sup>

#### C) Milk Products: -

1. *Payasama* which act as *rasayan* property.
2. Skimmed milk powder contains higher amount of protein; hence it can be used in PEM.<sup>20</sup>
3. Warm milk in elderly person often have trouble sleeping. In *Ayurveda* vitiation of *vata dosha* is more in old age which cause insomnia. According to modern medicine there is lower production of the hormone melatonin in old age which causes insomnia. It contains relatively high level of melatonin which induces sleep<sup>21</sup> and many *acharya* narrated that it is beneficial in eye disorder.

#### D) Role of fruits in Elderly: -

1. Banana :- It has beneficial effect on intestinal disorder which is major problem among elderly .The contain mucilaginous bulking substance which help in digestion<sup>22</sup> and it is good for enhancing mood because it contain good amount of tryptophan which can be converted into a relaxing neurotransmitter called serotonin.<sup>23</sup>
2. Papaya: - It contain beta carotene and lycopene which is protective against senile cataract.<sup>24</sup>
3. Grapes: - It contain compound resveratrol which have been positively linked to the fighting cancer, heart disease and degenerative nerve disease.<sup>25</sup>
4. Avocados:- The elderly who consumed one fresh avocado per day for six month had higher level of lutein and increased macular pigment density which improves the cognition as measured by improvement in working memory and efficiency of approaching a problem.<sup>26</sup> Several clinical studies suggest that xanthophyll's, similar to those found in avocados, may have antioxidant and DNA protective effects with possible healthy ageing. It also has enhancing wound healing activity and reducing UV damage to protect skin.<sup>27</sup>

E) Role of Greenleaf vegetable in elderly:- The elderly who consumed Greenleaf vegetable regularly which positively and significantly associated with slower rate of cognitive decline, possibly due to the neuroprotective action of specific nutrient .It

may aid preserving memory and thinking skills as a person become older.<sup>28</sup>

F) Role of Non vegetarian food in elderly: -

- 1) **Fish:-** Fish intake is linked to reduced mental decline in older adults .People who eat fish regularly also have more greywater in the brain centre's that control memory and emotion. It contain omega -3 fatty acids may combat depression both on their own and when taken with antidepressant medication.

People who eat more fish have a much lower risk of age-related macular degeneration a leading cause of vision impairment and blindness.

Preliminary evidence indicates that eating fatty fish like salmon may improve sleep.<sup>29</sup>

- 2) Chicken soup: - In elderly muscular strength and disorientation of sense organ is manifested. It provides strength to the muscular strength and senses because it has property *sharir brahan*, increase the immunity power and provide lustre to the body.<sup>30</sup>

3) Egg:- It contain vitamin A ,omega-3 fatty acid, antioxidant lutein and zeaxanthin in the prevention of age related macular degeneration.<sup>31</sup> A micro nutrient choline which is present in egg that be used by body to create acetylcholine a, neurotransmitter that helps regulate mood and memory.<sup>32</sup>

#### Role Of Vitamin And Mineral In Neurological Health<sup>33</sup>:-

- 1) **Vitamin C:-** Ascorbate is also involved in conversion of tryptophan to serotonin, a relaxing neurotransmitter the enzyme involved in synthesis of norepinephrine from dopamine is vitamin c dependent. It may be protective against cataract at an intake level of between 150 and 250 mg per day which is possible to achieve from dietary source alone.
- 2) **Vitamin B<sub>1</sub>:-** Thiamine is also necessary for the synthesis of acetylcholine and GABA. Acetyl Co. A is also a precursor for acetylcholine and for myelin synthesis. It has been found to be involved in transmission of nerve signal to peripheral nerve.
- 3) **Vitamin B<sub>3</sub>:-** In pellagra dementia or depression is one of characteristics features which occur due to deficiency of niacin. It plays a prime role

information of neurotransmitter serotonin. Food like milk product and green leaf vegetables intake improves the niacin in the body. Recent studies suggest that this vitamin may be beneficial in reducing risk of neurodegenerative disease.

- 4) **Vitamin B<sub>6</sub>**: - Epidemiological finding suggest that high calorie diet and folic acid deficiency increase the risk of Alzheimer's, Parkinson disease and severe anaemia in elderly. It also increases the elevated serum homocysteine level which is a risk factor for cardiac disease. Vitamin B<sub>6</sub> rich foods increase the production of several neurotransmitter e.g. Serotonin from tryptophan, norepinephrine from tyrosine. It also required formation of niacin from tryptophan. In this way help to cure the age-related disorder.
- 5) **Vitamin B<sub>12</sub>**: - It play a significant role information of myelin that surround's nerve fibres and may also be important for cognitive function.
- 6) **Minerals**: - Loss of short-term memory and disorientation and commonly observed in old age which can be improved by calcium, zinc, magnesium intake through various foods.

Beside also above discussion of nutritive values of food articles. *Ayurveda* suggest a comprehensive *Laghu, santarpak ahar* which promotes & maintains *Agni* status in elderly, which balanced the function of *tridosha*. The *vata* in normal state reflects itself in the form of enthusiasm, inspiration, expiration, regulates the body movement, normal the metabolic transformation of tissues and proper elimination of excreta. The action of *pitta* in its normal state are good vision, proper digestion, normal temperature, normal hunger, thirst, bodily softness, lustre, happiness and intelligence. Effect of *kapha* in its normal state are unctuousness, cohesion, steadiness, heaviness, virility, strength, forbearance, patience and greedlessness.<sup>35</sup> The *laghu santarpak* diet having high caloric value, easily digestible and having optimum nutritive value should be recommended in *Jara awastha*.

## CONCLUSION

To live happy life and to promote longevity of life *Ayurveda* has described many principles out of which

*Ahar* is a part of *Triupstamba* which plays a major role to slow down the process of ageing if followed in a proper way. *Matrasana* (balance diet) is one of the basic requirements for healthy longevity of life. The standard guidelines and counselling related to elders in a systemic manner and the recipes mentioned above are enough to fulfil all requirements of the body during old age. In this way person following proper instructions regarding diet people may live happy, purposeful and joyful life.

## REFERENCES

1. Sushruta, SushrutaSamhita with Nibandha Sangrha Commentary of Dalhanacarya, edited Keval Krishana Thakral Acharya, Chaukambha oritenlia Prakashan, Varanasi, Edition 1st, 2016, Sutrasthan 24 verse 5, p. 279.
2. Anjana Agrawal, Shobha A Udipi, Textbook of human nutrition, Jaypee brother medical Publisher's P (LTD), Nutrition and dietary consideration at different life stages, Pg No161
3. Tripathi B (2008) Chikitsa Sthan 15/43, Charak Samhita Part 2, Chaukhambha Surbharti Prakasan, Varanasi, India. Pg no: 367.
4. B. Srilakshmi (2014), Dietetics, New age international(p) limited, publisher's, Nutritional and food requirements during old age, Pg No 146.
5. Anjana Agrawal, Shobha A Udipi, Textbook of human nutrition, Jaypee brother medica Publisher's P (LTD), Nutrition and dietary consideration at different life stages, Pg No 422.
6. Manju Mehta, Behavioural science in medical practice, Jaypee brother medica Publisher's P (LTD), Adulthood to ageing, Pg No 128.
7. Manju Mehta, Behavioural science in medical practice, Jaypee brother medica Publisher's P (LTD), Adulthood to ageing, Pg No 128.
8. Anjana Agrawal, Shobha A Udipi, Textbook of human nutrition, Jaypee brother medica Publisher's P (LTD), Nutrition and dietary consideration at different life stages, Pg No 422.
9. Tripathi B (2008) Chikitsa Sthan 1/7, Charak Samhita Part 2, Chaukhambha Surbharti Prakasan, Varanasi, India. Pg no: 5.
10. B. Srilakshmi (2014), Dietetics, New age international(p) limited, publisher's, Nutritional and food requirements during old age, Pg No 153.

11. B. Srilakshmi (2014), Dietetics, New age international(p) limited,publisher's, Nutritional and food requirements during old age, Pg No 162.
12. B. Srilakshmi (2014), Dietetics, New age international(p) limited, publisher's, Nutritional and food requirements during old age, 4.B. Srilakshmi (2014), Dietetics, New age international(p) limited, Publisher's, Nutritional and food requirements during old age, Pg No 161.
13. Acharya Priyavat Sharma and Dr Guru Prasad Sharma, Kartanna Varg, Kayadevanighantu, Chowkhamba Orientalia publication Varanasi, Pg No 435.
14. Acharya Priyavat Sharma and Dr Guru Prasad Sharma, Kartanna Varg, Kayadevanighantu, Chowkhamba Orientalia publication Varanasi, Pg No 408.
15. Acharya Priyavat Sharma and Dr Guru Prasad Sharma, Kartanna Varg, Kayadevanighantu, Chowkhamba Orientalia publication Varanasi, Pg No 408.
16. Ayurveda based dietary and mental health and psychiatric disorder, publisher's CCRAS ministry of ayush, govt of India, ISBN: 978-93-83864-50-8, Pg No 28-29.
17. Ayurveda based dietary and mental health and psychiatric disorder, publisher's CCRAS ministry of ayush, govt of India, ISBN: 978-93-83864-50-8, Pg No 30.
18. www.Healthy eating. Sf.gate.com.
19. 19.www.stylecraze.com.
20. Anjana Agrawal, Shobha A Udipi, Textbook of human nutrition, Jaypee brother medical Publisher's P (LTD), Nutrition and Health Significance of Food Ingredients, Pg No 606.
21. www.milkgenomics.org.
22. Arindam Ramaswamy, Elements of Food Science, Oxford Book Company Jaipur, India, ISBN: 978-93-80179-14-8, Vegetables and Fruits, Pg No 151.
23. Anjana agrawal, shobha A Udipi, Textbook of human nutrition, Jaypee brother medical Publisher's P (LTD), Nutrition and Health Significance of Food Ingredients, Pg No 596.
24. Anjana agrawal, shobha A Udipi, Textbook of human nutrition, Jaypee brother medical Publisher's P (LTD), Nutrition and Health Significance of Food Ingredients, Pg No 596.
25. Arindam Ramaswamy, Elements of Food Science, Oxford Book Company Jaipur, india, ISBN: 978-93-80179-14-8, Vegetables and Fruits, Pg No 158.
26. www.loveonetoday.com.
27. www.ncbi.nlm.nih.gov.
28. www.medicalxpress.com.
29. www. nia. nih. gov.
30. www. Healthline.com
31. Charak, *Charaksamhita, Ayurveda* – Dipika's Ayusi Hindi – Commentary, Editor-Translator by Vd. Harish Chandra Singh Kushwaha, Sutrasthan 27/87, P418, Reprint Ed, Vol.1ChaukhambaOrientalia, Publication, Varanasi, 2016.
32. www.enc.org.au.
33. Anjana agrawal, shobha A Udipi, Textbook of human nutrition, Jaypee brother medical Publisher's P (LTD), Vitamins- Fat soluble and water soluble.
34. Dr Ram Karan Sharma and Vaidhya Bhagwandas (2018) Sutra sthana18/49-51, Charak Samhita volume 1, Chowkhamba Sanskrit series office, Varanasi (India), Pg No346.

**Source of Support: Nil**

**Conflict of Interest: None Declared**

How to cite this URL: Punit Dongre: Role of Nutrition in Jara Awastha. International Ayurvedic Medical Journal {online} 2019 {cited December, 2019} Available from: [http://www.iamj.in/posts/images/upload/2233\\_2240.pdf](http://www.iamj.in/posts/images/upload/2233_2240.pdf)