Review Article

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# DIET GUIDELINE FOR GERIATRIC PATIENT: A LITERATURE REVIEW

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## ABSTRACT:

To keep the body in good health is a most important duty. Without health life is not life; it is only a state of languor and suffering. Many age related diseases are highly influenced by nutrition. Prosthodontist is a geriatric dentist who interacts with more number of older people as compare to other profession. So, it is a major role for a prosthodontist to guide the older people regarding malnutrition, balanced diet and age related diseases. In this literature review it is explained the outlines of nutrition, basic requirements of nutrition associate with aging.

**Keywords:** Diet, Geriatrics, Malnutrition, Denture wearer

## INTRODUCTION:

Good nutrition is important at any age. Healthy eating will help to prevent or manage heart disease, osteoporosis, and diabetes and also some cancer.[1]At old age income of the person is decreased and also loneliness effect the nutritional status.Due to poor knowledge about desirable food choices also contributes to the poor nutritional status of elderly and Chewing, digestion and metabolism is interfered by dental and medical infirmities. Special dietary regimens require in diabetes, obesity, cardiovascular disease, osteoporosis and cancer.[2] Proper nutrition is essential to the health and successful prosthodontic treatment of the elderly.[3] A proper nutritional assessment and suitable dietary advice is often a more appropriate way to cope with malnutrition than merely instituting prosthetic therapy.A balanced diet with adequate nutrients is essential for oral health and in turn, oral health enhances nutritional well being.[4] Nutrition deserves special attention for older people. A decline in food intake is common among older people. A person's ability to chew food relies on the presence of effective teeth or dentures together with normal saliva flow. Food selection and masticatory performance potential provided by the quality of dentition would in some way be related to the nutritional status of individuals. Incorrect food selection and the consequent unbalanced intake of nutrients, as a result of the difficulty or incapability of consuming them, are associated with certain nutritional deficiencies.[5]

In this review article, we describe about the requirement of different essential nutrients

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for better health and improvement of physical and mental status of elderly people.

**BRIEF REVIEW OF GERIATRIC NUTRITION:**

William T Fischer (1955)[6] conducted a study on prosthetics and nutrition. He explained that nutrition is one of the major factors that determines the success or failure of the prosthetic appliance in the mouths of aging people. Jamieson C.H. (1958)[7] in his study on "Geriatrics and the denture patient" described that aging is largely due to a gradual loss of energy resulting in structural and functional changes in the body. Wical KE and Swoope (1974)[8] explained the relationship of residual ridge resorption .They described the atrophy of the alveolar bone as a systemic disease. Barone JV (1978)[9] analyzed the nutrition of the edentulous patient. After extraction continues resorption of bone occurs and cause further shrinkage of supporting tissues. Postmenopausal problem and obesity affects the rate of resorption of bone. Wical K.E and Brusse (1979)[10] demonstrated the effects of calcium and vitamin D supplementation on alveolar ridge resorption in immediate denture patients. Daily calcium and vitamin D supplementation would tend to reduce the rate and extent of alveolar bone resorption following extraction of the teeth. Massler M (1979)[11] in his study on geriatric nutrition and osteoporosis concluded that the success or failure of an oral prosthesis depends as often on upon the health of the oral tissues as upon the technical skills of the prosthodontist. He also described the role of taste and smell in appetite in nutrition. Brodeur JM (1993)[12] studied the nutrient intake and gastrointestinal disorders related to masticatory performance. Inadequate high-fiber foods could induce the development of gastrointestinal disorders in edentulous elderly subjects with a deficient masticatory performance. Papas AS (1998)[13] studied the effects of denture status on nutrition. Dentists need to consider carefully the importance of their elderly patients maintaining at least some natural dentition and should provide adequate information on nutritional adaptations to dentures. Allen PF (2005)[14] presented a review of the functional and psychosocial outcomes of edentulousness treated with complete dentures. Skill of the clinician and laboratory technician and patient factors affect the results of the denture therapy.

**NUTRITIONAL OBJECTIVES [15]:**

1. To establish a balanced diet and this is consistent with the physical, social, psychological and economic background of the patient.

2. To provide temporary dietary supportive treatment, directed towards specific goals such as carries control, post-operative healing, or soft tissue conditioning.

3. To interpret factors peculiar to the denture age group of patients, this may relate to or complicate nutritional therapy.

**ALTERNATION OF THE STRUCTURES CHANGES IN GERIATRIC PATIENTS** [16, 17, 1, 2]

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| **Alteration in olfaction** | Number of taste buds appears to decrease with age. |
| **Salivary function** | Xerostomia is a condition of dry mouth as a result of diminished salivary flow commonly found in the elderly. It is not effected directly by aging but depends upon factors which responsible for secretion of saliva. |
| **Oral mucosal changes** | Pain, dryness & burning sensation of the mouth, cracks in the lips. Difficulty in swallowing and chewing of food. Taste is altered. |
| **Muscle function and oral movements** | Ability of muscle function and tonicity decreases with age. Nerve impulse gets impaired, which affect the activity of striated muscle fibers.<br>Due to this it prolongs the chewing time and strokes. |
| **Temporomandibular joint pain** | With age, the glenoid fossa can become shallower and the head of the condyle flatter. Perforation or damage of articular disc between the condyle and fossa by this change in temporomandibular relationships and limits the range of movements of the jaws**.** |
| **Edentulism** | Lack of dentition does not necessarily mean dietary intake will be compromised but considering that teeth serve as the primary means of mastication as well as has an impact on socialization and communication. |
| **Alveolar bone loss** | Alveolar bone density, like skeletal mass declines .The rate at which this occurs is affected by oral hygiene, (intestinal absorption of calcium) nutrition, genes, and hormones, maturity of bone density. |

**ASSESSMENT OF NUTRITION IN THE ELDERLY** [18]

1) Assessment of height
2) Assessment of weight
3) Measuring Body Mass Index **(BMI)** score
4) Identification of Malnutrition

5) Serum albumin level
6) Assessment of functional Health Status Tools
7) Dietary Reference Intakes **(DRIs)** and Recommended Dietary Allowances **(RDAs)** DRIs
8) Activities of Daily Living **(ADLs)**

**GERIATRIC NUTRITION [18]:**

| **VITAMIN** | SOURCES | **DEFICIENCY** |
|---|---|---|
| **Vitamin C** | Citrus food, Amla, guava, tomatoes, green vegetables ,potatoes etc. | Spongy, bleeding in the gums, painful joints, delayed wound healing ,osteoporosis, hemorrhage , petechiae and decrease immunity |
| **Vitamin B6** | Meat, milk, fish, egg yolk, corn, wheat | Immune function, Depression,irratibility,nervousness,mental confusion, Decrease in hemoglobin levels |
| **Vitamin B12** | Liver, kidney, eggs,fish,pork,chicken,milk,curd | Megaloblastic anemia,Impaired cognitive function,Dementia,Neuropsychiatric disorders,Lethargy and malaise, Glossitis, Skin hyper pigmentation |
| **Folic Acid / Folacin** | Green, leafy vegetables, Whole grains, eggs, cereals ,liver , kidney | Glossitis, Skin hyper pigmentation , Megaloblastic anaemia |
| **Vitamin D** | Fatty fish, fish liver oils, egg yolk, milk | Required for maintenance of bone health and absorption of calcium<br>Bow legs,Beading of ribs |
| **Vitamin A** | Liver,kidney,eggyolk,milk, cheese, butter, fish liver oils | Bitot's spots (eyes),<br>Conjunctival and corneal xerosis (dryness)<br>Xerosis of skin, Follicular hyperkeratosis |
| **Protein** | Fish, Chicken, Cheese, Tofu,Beans,eggs,Yoghurts, | Edema, Dull, dry, sparse, easily plucked hair, Enlargement of parotid gland and |

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|---|---|---|
| | soymilk,Nuts,seeds | wasting of muscle. |
| **Iron** | Leafyvegetables,pulses,cereals, fish.apples, dried fruits, molasses | Pallor, atrophic tongue Spoon nails, Pale conjunctiva |
| **Niacin** | Beans,peanuts,Grains,liver,yeast ,milk,fish,eggs and vegetables | Nasolabial seborrhea, Fissuring of eyelid corners, Angular fissures around mouth, ,Pellagrous dermatitis,Mental confusion |
| **Riboflavin/ Vitamin B $_2$** | Mik and milk products, cereal fruits, vegetables and fish | Nasolabial seborrhea,Fissuring and redness of eyelid corners and mouth, Magenta colored tongue, Genital dermatosis |
| **Thiamine/ Vitamin B $_1$** | Cereals, pulse, oil seeds ,nuts ,yeast,pork,liver,heart,kidney, milk | Mental confusion, Irritability, pain in calf muscle, loss of sensory and enlargement of cardiac muscle |
| **Water** | | Rapid dehydration and associated problems such as hypotension, elevated body temperature and dryness of the mucosa, decreased urine output and mental confusion. |
| **Fibre** | Bran, ,Bread, Cereal | Gastrointestinal disturbances, increased risk of myocardial infarction |
| **Zinc** | Animal products, whole grains and dried beans | Decreased taste acuity, slow wound healing, mental confusion |

Evaluation of nutritional status by collection of data from the following areas; medical social history, clinical examination (including both physical signs and certain anthropometric measures), dietary assessment, and biochemical tests because altered nutritional status can range from inadequate intake of a single nutrient resulting in the simple reduction of nutrient reserves to complex metabolic dysfunctions and clinical deficiency, a multilevel sequence of procedures is presented. Most common medically compromised disease such as Diabetes, Hypertension, Cancer, Osteoporosis, Dementia etc in which there is necessitate to follow well balanced diet.

**DIET CHART FOR MEDICALLY COMPORMISED PATIENT [18]**

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| **Diabetes mellitus** | **Choose foods low in fatty acid and milk products with low fat contents**<br>**whole grains, Liquid or soft margarine is a better choice** |
| **Hypertension** | Use less salt, Choose fresh or frozen meats and vegetables and canned or processed foods without added salt. Limit added salt when cooking. Herbs , spices, lemon juice, vinegar to flavour foods. |
| **Osteoporosis** | The foods that you eat may help protect you from bone loss. Increase calcium and vitamin D . Avoid taking large doses of fish liver oils. |
| **Dementia** | Offer smaller meals and more snacks between meals; Serve high calorie foods, Reduce distractions. |
| **Coronary Heart Disease** | lean meats, dried beans or fish, fruits, vegetables and<br>whole grains, Liquid or soft margarine is a better choice |

**DIET CHART FOR DENTURE WEARER AFTER DENTURE INSERTION [15]**

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|---|---|
| **First Day** | **Juices is recommended in Vegetable fruit group**<br>**Bread cereal group in form of gruels cooked in either milk or water**<br>**Milk products**<br>**Egg , Meat soup** |
| **Second Day & Third Day** | **Vegetable fruit group** - in addition to fruit and vegetable juices, tender cooked fruits and vegetables (skin and seeds must be removed) cooked carrots, tender green beans.<br>**Bread-cereal group:** cooked cereals such as cream of wheat and softened bread; boiled rice.<br>**Milk products**<br>**Meat group**: Fish, soft cooked chicken |
| **Fourth Day** | **Raw vegetables** and **sandwiches** are the foods least preferred by denture wearers but in fact it require more force during mastication. |

*BALANCED* **DIET CHART FOR SOUTH ASIAN ELDERY PEOPLE** [18]

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|---|---|
| | **High- fibre breads and cereals, colourful fruit, and protein filled with energy for the day. yogurt with berries, omelette, peanut butter** |
| **BREAKFAST** | |
| **LUNCH** | Keeping body fuelled for the afternoon with red lentil, dhal, Spinach, chick pea, curry, Yoghurt raita, Side salad, Rice or chapatti, Banana, Chicken curry, Rice |
| **SNACKS** | Choose almonds and raisins and fruits. Other smart snacks include milk product, apples and Veggies. |
| **DINNER** | Vegetable salad, crusty brown bread and cheese, grilled salmon etc |

## CONCLUSION:

Improper nutrition not only affects physical appearance but also it affects psychological status of patient. The management of the elderly population differs from that of the general population because of age-related physiological changes, the presence of age-related conditions/diseases, increased incidence of physical and mental disabilities, and also social and economic concerns. Malnutrion is more common in uneducated village people.

Prosthodontist is a geriatric dentist who interacts with more number of older people as compare to other profession. So, it is a major role for a prosthodontist to guide the older people regarding malnutrition, balanced diet and age related diseases.

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