Nutrition In Old Age
Mission

To work for the cause and care of disadvantaged aged persons and to improve their quality of life

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NUTRITION IN OLD AGE

Introduction
Eating the right type of food is important for a healthy lifestyle. Generally, we select foods that we like in our daily meals. We do not think of the nutrients or their health benefits. This booklet will help you understand some basic facts about foods which you eat everyday. It would also help you to select the right foods in the right amounts so as to remain healthy and fit. A few tips on healthy eating are also included.

Old age is not a disease but a biological process that no one can avoid. A little care and caution will prevent or delay many disabilities. With proper care everyone can enjoy long, healthy ageing. As age advances, several chronic diseases affect our health. Many of these like obesity, hypertension and diabetes are diet related and hence can be controlled and even prevented by modifying our diet. The last section will help you to select the right type of foods to prevent and control such ailments.

Significance Of Proper Nutrition In Old Age
As we all know, ageing is an inevitable, irreversible and progressive phenomenon. Advancing age is accompanied by progressive physiological changes in functions of most organs. As people age, there also tends to be a concomitant increase in the presence and number of chronic conditions such as hypertension, cardiovascular disease, osteoporosis, diabetes and dementias among others. These further compromise the quality of life in old age. Nutrition has emerged as a major modifiable determinant of chronic disease and age related decline. Most importantly, dietary adjustments not only influence present health but also determine whether or not an individual will
develop diseases like cancer, cardiovascular disease and diabetes much later in life.

As we grow old, certain changes occur in our body, some which are visible like greying hair, wrinkling skin, loss of hearing and weak eyesight. Several other changes occur internally, which we cannot see. Some of these changes influence the diet patterns of the elderly.

- The nutritional needs of the elderly, especially those over 80 years of age, are very different. Activity levels decrease and the body's metabolism also slows down. As we grow older, we therefore require less energy and correspondingly smaller quantities of food.
- Even though the elderly need less energy, they need the same amount or even more of vitamins and minerals than they needed as adults. Some of these like vitamin E and C are known to have anti-ageing benefits as well as protect us from diseases like cancer, heart disease and cataract. A liberal use of vegetables and fruits will help to provide these nutrients.
- Loss of teeth with advancing age leads to several dental problems. Many elderly are partially or totally toothless. As a result, chewing becomes extremely difficult. Liquids or soft cooked, mashed foods are preferred by them. However, such foods may not supply sufficient nourishment and supplements may be necessary.
- The power to digest and absorb food gradually decreases. Changes in digestive system occur necessitating certain modifications in the kind and amount of food we can eat and number of meals to be taken. Elderly people commonly complain of heaviness, fullness in the stomach, even gas formation and acidity. The diet should therefore be carefully selected.
As we grow older, the pleasure of eating diminishes. Food preferences also alter with advancing age. This occurs because of a decrease in the sensitivity of the taste buds. The ability to perceive tastes like sweet and salty diminishes. The taste of food appears bland. Therefore meals should be made more attractive and appealing by including a variety of foods.

Dietary Needs
In view of all the changes discussed above, the diet and nutrient needs of the elderly are different from young adults. WHO (2002) has outlined nutritional requirements for older persons (refer to Box).

Recommended Nutrient Intakes For Older Persons (who, 2002)

- **Energy:** 1.41.8 multiples of the basal metabolic rate (BMR) to maintain body weight at different levels of physical activity.
- **Protein:** 0.91.1 g/kg per day
- **Fat:** 30 en% in sedentary older persons and 35en% for active older persons. Saturated fats should not exceed 8% of energy.
- **Calcium:** 8001200 mg/day
- **Iron:** 10 mg/day assuming no excessive iron losses.
- **Selenium:** 5070 ug/day
- **Zinc:** Moderate Zn availability (30%) Men 7.0 mg/day, Women 4.9 mg/day
- **Riboflavin:** 1.3 mg for men and 1.1 mg for women.
- **Folate:** 400 ug/day
- **Vitamin B12:** 2.5 ug/day
- **Vitamin C:** 60100 mg/day
- **Vitamin A:** 600700 ug retinol equivalents/day
- **Vitamin D:** 1015 ug/day
- **Vitamin E:** 100400 IU/day
With advancing age, the body's basal metabolism decreases. Moreover, old people are also less physically active. Hence, energy requirements decrease. The intake of energy giving foods such as chapati, rice, sugar, ghee and oil should therefore be reduced. Protein requirements in old age are similar to young adults i.e. 0.9-1.1 g/kg per day. Protein can be provided by the inclusion of milk and milk products, eggs, meat, fish and chicken as well as pulses and nuts in the diet. However, it is advisable to consume eggs, whole milk and fatty meats sparingly as they are rich sources of fat and cholesterol. Carbohydrates are energy giving nutrients and in the Indian dietary, 55-65 energy % should be provided by carbohydrates. Care should be taken to restrict the amount of sugar and refined cereals in the diets and include whole cereals, pulses, fibre rich fruits and vegetables instead. According to WHO (2002) except where overweight or obesity are problems, there is no need to restrict fat intakes beyond 30 energy % for sedentary, and 35 energy % for active, older persons. However, consumption of saturated fats should be minimized and not exceed 8 energy %. It is desirable to include a variety of fats in the diet, particularly n-3 fatty acids found in fish, soy, linseed, canola seed and oil, seaweed and green leaves. Fats and oils like ghee, butter, and refined oils should be taken in moderation. Avoid fried foods, rich pastries, fatty meats etc.

It is a well-known fact that demineralization of bones occurs with advancing age and osteoporosis is a major health problem of the elderly. Calcium and vitamin D (produced by the body on exposure to sunlight) help to maintain good bone health. Therefore, it is advisable to increase the intakes of calcium rich foods like milk and milk products like paneer and curd, green leafy vegetables and sesame seeds (til). If elderly are confined indoors and are not exposed to sunshine, they should be given supplements of vitamin D. Anaemia is another common nutritional problem in old age and efforts must be made to include iron
rich green leafy vegetables, fresh foods, jaggery, rice flakes etc. in the diets of elderly.

**Vitamin A (beta carotene), vitamin E and vitamin Care protective antioxidants**

Liberal intakes of foods rich in beta carotene such as green, yellow and orange vegetables and fruits are advocated due its antioxidant properties. Citrus fruits, green leafy vegetables, cabbage, green chillies, amla, guava and sprouted pulses are rich sources of vitamin C. **Folate**, found in green leafy vegetables, pork, liver, pulses, groundnuts and oilseeds, is associated with a diminished risk of vascular disease.

In addition to the recognized essential nutrients, there are many other food components collectively known as **phytochemicals** about which little is known but whose biological effects can lower the risk of major health problems such as cancer and heart disease. Hence, consumption of foods rich in phytochemicals such as green tea, red wine, garlic, tomatoes and so on should be encouraged.

Many degenerative age-related diseases aggravate the tendency towards dehydration in older persons. Generally, adults require about 30 ml/kg of **fluids** per day. Fluids do not just have to be water and may include other fluids such as milk, juices, soft drink, soup, tea and coffee. However, tea and coffee should be taken in moderate amounts only.

**Guide to Healthy Eating**

Eating a variety of foods is important, no matter what your age. If you eat well, you are likelier to feel healthier, stay active for longer and protect yourself against illness. To make it easier for you to plan nutritious meals for yourself a simple guide is given below.
Cereals are the basic foundation of our daily diet. Try to include at least 1-2 servings of any cereal preparation in every meal—chapati, rice, bread, dalia, upma etc. These foods provide energy, vitamins and minerals. Remember to eat some unrefined cereals because they are rich in fibre, vitamins and minerals. Whole wheat flour (atta) should be preferred to refined flour (maida), undermilled rice is better than polished rice.

Vegetables and Fruits on the second step are excellent sources of numerous nutrients especially fibre, minerals and vitamins. These foods are rich in antioxidant nutrients which protect us from several diseases like cancer, heart disease etc. Try to include plenty of vegetables and fruits in the daily diet. Remember to eat some amount of these in the raw form.

Pulses, nuts, milk and milk products, fish and chicken on the third step are good sources of protein and hence useful to the body. Include at least one food item from this group in every meal. Milk and its products like cheese, curd, paneer etc. contain calcium which helps to keep the bones strong.
Eggs and red meat should be taken in limited amounts, as one grows older. They are rich in fat and cholesterol and may lead to diseases like high blood pressure, heart disorders and cancer in later life.

Oil, ghee, butter on the fifth step provide energy. Excessive consumption of these fats in old age is harmful to health. Avoid eating too much of fried foods as we grow older. Use vegetable oils like sunflower, corn or soya oil for cooking food rather than ghee or vanaspati.

Salt is considered to be an essential constituent of our diet. However, the taste for salt is an acquired one. Too much salt is harmful for the body. Its use should be restricted as it can lead to high blood pressure and other related disorders.

Sugar and Jaggery also provide energy. However, their use in the diet should be restricted as it can lead to diabetes and other degenerative diseases.

In general, food on the fifth step - oil, butter, ghee, salt sugar and jaggery though essential and beneficial in young age should be consumed with caution as age advances.

Tips for Healthy Eating

- Enjoy a wide variety of nutritious foods. The benefits of variety are that it increases the possibility of obtaining enough nutrients, reduces exposure to small amounts of toxic substances and offers protection against chronic diseases. If you eat a varied and nutritious diet, the impact of factors such as changes in taste perception and interactions between medication and nutrients which can impair your nutritional status will be reduced. Eat a variety of cereals, vegetables and fruits, nuts and seeds. Where refined fats are necessary for cooking, select from a variety of liquid oils, including those high in omega-3 and omega-6 fats.
Eating in company can increase your enjoyment of food. Make an effort to enjoy some meals with children, grandchildren, friends and neighbours. However, avoid the regular use of celebratory foods (e.g. mithais, ice cream, cakes and pastries).

- **Select nutrient-dense foods** such as fish, lean meat, liver, eggs, soy products and low-fat dairy products, yeast-based products, fruits and vegetables, herbs and spices, whole-grain cereals, nuts and seeds.

- **Emphasize healthy traditional vegetable- and legume-based dishes.** Introduce healthy traditional foods or dishes from other cuisines (e.g. wheat, bajra etc in South Indian diets and ragi in North Indian menus). Limit traditional dishes/foods that are heavily preserved /pickled in salt and encourage the use of herbs and spices. Transfer as much as possible of one's food culture, health knowledge and related skills to one's children, grandchildren and the wider community.

- **Include some of your favourite foods in your daily meals.** As one grows older, the pleasure of eating diminishes. The taste of food appears bland. Therefore meals should be made more attractive and appealing by including a variety of foods. Use a variety of seasonings but do not eat very spicy foods.

- **Eat at least 3-4 meals every day.** You must make sure that you eat 3-4 meals, at fixed times, every day. Missing an occasional meal may not cause any harm but doing so habitually would deprive the body of essential nourishment. If your appetite is poor and you are gradually losing weight, consult your doctor.

- **Overcome chewing problems.** Most elderly complain of dental problems like lose teeth, ill fitting dentures or problems in chewing. Soft, well-cooked foods like vegetable dalia, khichri etc
can be eaten by these individuals. Hard foods like raw vegetables and fruits can be included in the grated, boiled or stewed form.

- **Ensure easy to digest meals.** Difficulty in digesting food is another common complaint in old age. Hence, one should avoid fried, fatty, spicy and very sweet foods. Very large meals may not be tolerated, so 3-4 small meals may be preferred. Eating small nutritious snacks in between meals may help to alleviate acidity and heartburn.

- **Prevent constipation.** The elderly often suffer from constipation. Eating fibre rich foods like whole cereals pulses, vegetables and fruits helps to overcome constipation. Drink at least 6-8 glasses of fluids like water, milk, juice, tea, soup etc. daily.

- **If you drink alcohol, limit your intake.** Small amounts of alcohol have been shown to have health benefits one of the best known is the reduction in stroke. However excess alcohol has potential side effects, such as liver damage, which outweigh the benefits of a moderate intake. Older persons are more susceptible to the toxic effects of alcohol. In addition, alcohol interacts with medication and thus may be harmful to health.

- **Ensure food safety.** Older people are particularly at risk from complications from food poisoning. The main causes of food poisoning could be not cooking food for long enough, not storing food at the correct temperature, using contaminated equipment such as chopping boards, purchasing an unsafe food and poor personal hygiene. You therefore need to be very careful while eating out and also while handling food in your own kitchen.

- **Be physically active** on a regular basis and include exercises that strengthen muscles and improve balance.

**Dietary Guidelines for Diet Related Chronic Disorders**

Eating the wrong type of foods can lead to several problems in old age.
Obesity, hypertension and heart disease as well as diabetes mellitus are common diet related degenerative diseases of advancing age. Simple diet restrictions will help to not only control these disorders but also if started early enough may even prevent the onset of these chronic ailments.

**Obesity**

Obesity is basically accumulation of excess body fat leading to an increase in body weight. Obesity is not only unattractive but it leads to many other problems like arthritis, heart disease, diabetes etc. Hence, maintaining weight within normal range will keep one healthy and active. Some dietary considerations to reduce weight include:

- Decrease the amount of cereal foods eaten e.g. rice, chapati, bread etc.
- Reduce intake of fatty foods e.g. ghee, butter, oils, fried foods. Substitute skimmed milk for whole milk.
- Avoid foods with excess sugar e.g. chocolates, sweets, mithai, carbonated beverages, jam, jellies etc.
- Include more fibre rich fruits and vegetables in the diet. Eat plenty of green leafy vegetables, carrots, raddish, beans etc.
- Do some form of physical activity. Walking is an excellent exercise.

**Hypertension and heart disease**

Hypertension or high blood pressure as well as most heart diseases occur due to excessive deposition of fat in the arteries. This process occurs over a period of time and obesity is an important predisposing factor. Hence, dietary guidelines for prevention of heart disease and hypertension are directed towards reducing obesity as well as offering cardio protection. Major guidelines include:
Achieve a healthful body weight and calorie balance by increasing physical activity and maintaining adequate calorie intake.

Restrict the intake of fats, particularly saturated fats like ghee, butter and milk fat. Vegetable oils like corn oil, sunflower oil, soyabean oil etc. may be used for cooking food. The traditional practice of using a combination of 2-3 oils in food preparation provides the ideal mix of fatty acids.

Food preparations made with hydrogenated fat or reheated oils such as some namkeens, biscuits etc are rich in trans fats which are harmful for heart health. Therefore it is important to read labels of such foods for their trans fat contents.

Eggs and red meats should be avoided. They are rich in saturated fats and cholesterol. If desired, only the egg white may be eaten. Fish and chicken are other suitable alternatives.

Include fat-free/low-fat dairy foods and/or other calcium/vitamin D-rich sources.

Restrict the intake of salt in foods. Most snacks like wafers, samosas, pakoras, mathri etc. contain large amounts of fat and salt and hence should be avoided.

Eat plenty of vegetables and fruits. These are rich in vitamins, minerals, phytochemicals and antioxidants.

Include fibre rich foods, particularly pulses, legumes, oats which are rich in soluble fibre. These help to lower blood lipid levels.

Alcohol should be restricted or completely avoided.

**Diabetes Mellitus**

Diabetes Mellitus leads to an increase in blood sugar levels. This disease is due to a deficiency of insulin in the body. Obesity is a strong predisposing factor. Though there is no cure for diabetes, it can be controlled by suitable dietary interventions. If uncontrolled, it can lead
to several complications affecting the eyes, blood vessels and kidneys. Controlling weight is the first step in the management of this disease. Other dietary considerations include:

- Sweet foods like sugar, jaggery, chocolates, mithai etc. should be completely avoided.
- Restrict the use of starchy fruits and vegetables like banana, mango, cheeku, potato, sweet potato, arbi etc.
- Include whole cereals and pulses instead of refined cereals and washed pulses.
- Eat plenty of fresh fruits and vegetables.

**Osteoporosis**
Calcium and vitamin D protect against osteoporosis. High calcium intake during the early years contributes to greater peak bone mass. During the later years, calcium, together with vitamin D reduces the rate of bone loss. There is increasing evidence that phytoestrogens from soy and some other plant sources may account for better bone health. An overall food pattern is likely to be more important for bone health among older persons than any single food factor taken alone. Physical activity including strength training will help to conserve bone mass.
Disclaimer:
This booklet is not intended to be a substitute for professional medical advice. If in doubt, please consult your doctor and follow his/her instructions. All the statements have been made by the contributors in their individual capacity.
Enjoy a wide variety of nutritious foods