

THERAPEUTIC DIETS

CHAPTER

5

OBJECTIVES

- Know the purposes of therapeutic diet adaptations.
- Explain the different ways by which the normal diet can be modified to suit therapeutic diet.
- Understand the principles of routine hospital diets.
- Elaborate on the different modes of feeding.
- Understand the role and responsibilities of dietitians ,
- Applications of computer in diet counseling



Therapeutic diet is the branch of Dietetics concerned with the use of foods for therapeutic purpose. It is a therapeutic approach for treating medical conditions and their associated symptoms by using specifically tailored diets devised and monitored by a registered dietitian.

5.1. PRINCIPLES OF THERAPEUTIC DIET

A well planned diet providing all the specified nutrients to the body helps to

achieve the nutritional homeostasis in a normal healthy individual. However, in disease conditions, the body tissues either do not receive proper nutrients in sufficient amounts or cannot utilize the available nutrients due to faulty digestion, absorption or transportation of food elements, thus affecting the nutritional homeostasis of the sick person. The diet needs to be suitably modified. It is important that the basis for planning such modified diets should be the normal diet.

Therefore diet therapy is concerned with the modification of normal diet to meet the requirements of the sick individual.

5.1.1. The General objectives of therapeutic diet are:

- Maintenance of a sound nutritional status of the subject.

- Rectifying existing nutritional deficiencies by the addition of foods rich in some necessary element, for instance supplementing the diet with iron in treating macrocytic anemia.
- By way of diet, supplying nutrients which do not burden the affected body part.
- Maintenance of healthy and ideal body weight. Increasing or reducing the weight as and when required medically to enhance quality of life.
- To adjust the diet to the body's ability to use certain foods.
- To produce specific effects as a remedy, like regulation of blood sugar in diabetes, controlling hypertension and regulating the amount of cholesterol.
- To provide ease of digestion by omitting irritating substances, such as fiber, spices or high fat foods.
- The therapeutic diets are modifications of regular / normal diet and are designed to meet the specific needs of the patients.

5.1.3. Factors to be considered in planning therapeutic diets :

- It is important to know the underlying disease condition or nutritional deficiency, which requires this intervention.
- The duration of the ailments - acute or chronic.
- Dietary modifications that need to be made to alleviate the symptoms and overcome the disease condition.
- Health condition of the patient – whether administering food orally or special feeding methods to be used.
- Social factors of the patient such as economic status and occupation.
- Personal food likes & dislikes.
- A normal routine of the patient keeping in mind meal times, recreational times & professional times.



Activity : 1

List out low fibre foods that are allowed and that are restricted in a therapeutic diet.

Allowed restricted

- 1.
- 2.
- 3.

5.1.2. The modifications in therapeutic diet that can be made are as follows:-

Method of preparation	by baking, boiling, roasting or broiling.
Consistency	like soft, fluid, clear or mashed
Total calories	high calorie in under nutrition or PEM and low calorie in obesity
Amount and kind of nutrients	for instance altering carbohydrate, protein, fat, vitamins and minerals based on the condition
Amount of fluids,	high fluid diet in kidney stones while a low fluid diet in renal failure
Amount of fibres,	high fibre in constipation and low fibre in irritable bowel syndrome (IBS)
Restriction or allowance of only specific foods,	sugar restriction in diabetes and sodium restriction in hypertension
Taste of food	bland in GI disorders

5.2. ROUTINE HOSPITAL DIETS

Hospital diet is an essential part of modern therapy in all medical departments. The integration of nutritional therapeutic problems into the treatments of patients require optimal scientific and practical forms of organization of nutrition in the clinic. Some of the hospital diets are regular diet, soft diet, liquid diet, clear liquid diet, full fluid diet, pureed diet and restricted diet.

5.2.1. Liquid diets

Liquid diets act as a transitional diet after illness or surgery. It consists of foods that are in a liquid state at body temperature. This type of diet is indicated in some post operative cases, in acute illness and in inflammatory conditions of the gastrointestinal tract. The three types of liquid diets are clear liquid, full liquid and pureed.

a) Clear liquid diet is given in –

Clear Liquid Diet

Definition:

- A Diet containing no solid foods, is often prescribed for gastrointestinal illness or before or after certain types of surgery involving the mouth or gastrointestinal tract.

Indication:

- Indicated for the postoperative patient
- Gastrointestinal illness
- Laboratory procedures

- Acute infections.
- Surgery or acute illness which causes anorexia, nausea, vomiting, abdominal discomfort and diarrhea, since food intake is restricted.
- In cases when excretion through rectal route needs to be avoided.
- It is also advised to supply water to the tissues, satisfy thirst and gas removal.

Inclusion of a clear liquid diet:-

Clear broth, black tea or coffee, plain gelatin and clear fruit juices which leave no residue. It does not form gas, non-irritating and non-stimulating to the peristaltic action

This diet is inadequate in all nutrients including proteins, calories, minerals and vitamins. Due to this reason it should not be continued for more than 24 to 48 hours. The diet consists of feeding of 30 to 60 ml /hour initially with moving to feeding every 2 to 3 hours while the patient is awake. This diet provides only 300 k.cal, no protein, negligible fat and 100 – 120 mg of carbohydrates.



Activity : 1

List 5 recipes suitable for clear liquid diet



b) Full fluid diet :

Full Liquid Diet

Definition:

- All Foods that are liquid are liquid at room temperature, It provides more Calories than the clear liquid diet, but is still liquid in the stomach and intestinal tract which is essential for patients who cannot chew or swallow solid foods.

Indication:

- For the postoperative patient
- Gastrointestinal illness

This diet bridges the gap between the clear fluid and soft diet.

This diet is given in

- the post operative stage
- acute gastritis
- acute infection
- diarrhea
- when the patient does not require a special diet, but are unable to chew solid or semi-solid foods .

The purpose of this diet is to provide an oral source of fluid for individual & who are incapable of chewing, swallowing & digesting solid foods. It is used as an intermediate progression to solid foods following surgery in conjunction with parental nutrition or in the presence of chewing or swallowing disorder or certain procedures such as jaw wiring. It is also used in the presence of oesophageal or gastrointestinal stiches, during moderate gastro intestinal inflammation and for acutely ill patients. Solid foods are completely not used.

Recommended food items:

- Soups and broths.
- Cereal porridges (refined cereals)
- Milk and milk beverages, yogurt
- Coffee, tea, fruit juices, carbonated beverages.
- Butter, cream and oil added to foods.
- Plain puddings, custard, ice cream, jelly.
- Sugar, honey, salt and mild flavorings.

The nutrient composition of the diet will depend upon the type and amount of liquids, the patient can consume. The diet is low in iron, vitamin B12, vitamin A and thiamine. Liquid nutritional supplements or blended foods could be added to improve nutritional adequacy. The feeds are usually given at 2- 4 hours intervals. This diet gives 1200kcal and 35g of protein. The diet can be made adequate for basic maintenance by careful planning.

c) Pureed diets:

A pureed diet refers to all foods blended in a blender. It is also called “**Blenderised diet**”. It includes regular foods blended and strained in liquid form and all foods allowed in clear and full liquid diets. Vitamin and mineral supplements may be needed with this diet if the recommended amount of food are not taken.



Butter milk



Custard



Cream soup



Ragi kanji

5.2.2. Soft diets:

A soft diet is soft in texture and consists of liquid and semi solid foods. The food in this diet may be liquid, chopped, pureed or regular foods with a very soft consistency. A soft diet is made up of simple, easily digestible food and contains no harsh fibre, low in fat and not rich and highly seasoned food. It is often modified further for certain pathological conditions as bland and low residue diet. This diet gives 1500kcal and 35-40g of protein. A light diet is given before regular diet.

Soft Diet

Definition:

- It is an adequate diet that is soft in consistency, easy to chew, made up of simple easy digestible foods, It is appropriate for patients who have few or no teeth or ill-fitting dentures.

Indication:

- Acute Infections
- Certain gastrointestinal disorders and at the post operative stage



Salient features of soft diets are:

- ❖ It includes foods low in indigestible dietary fibre.
- ❖ Foods that can be mashed with a fork are included.
- ❖ Cooked fruits and vegetables, bananas, soft eggs and tender meats are included.
- ❖ Most raw fruits and vegetables, fried foods or foods containing seeds and dried fruits are avoided.
- ❖ Vegetables can be pureed and meats are ground for dental patients.
- ❖ Little or no spices are used in its preparation.
- ❖ A soft diet includes all liquids & Juices.
- ❖ A soft diet consist of well-cooked cereals, pastas, white bread, eggs, cheese, tender meat, fish, poultry and vegetables.
- ❖ Permitted desserts are custards, gelatin puddings, soft fruits, simple cakes and cookies.



FOODS ALLOWED IN SOFT DIETS, FULL-FLUID DIETS AND CLEAR-FLUID DIETS

TYPE OF FOOD	SOFT DIET	FULL FLUID	CLEAR FLUID
Cereals	Refined, finely ground whole grain	Gruels, porridges kanji, ragi malt	Barley water
Pulses	All dhals	Dal soups, dal payasam	Dal water
Vegetables and Fruits	Juices, pureed, cooked and mashed, baked, ripe banana	Strained juices, cooked and pureed fruits	Clear strained fruit juice
Milk	Milk and milk products, cheese, fine cream	Milk and milk beverages, milk shakes, lassi	Whey water
Fats and oils	Butter, oil, cream, margarine	Butter, oil and cream	–
Meat and fish	All except pork, minced fish poultry	–	–
Eggs	All except fried	Only in beverages	Egg white well beaten in fruit juices
Sugar and jiggery	All	Sugar, jiggery and glucose	Sugar or glucose
Nuts and oil seeds	None	None	None
Beverages	All	Tea, coffee, egg, non-carbonated beverages	Tea, coffee(without milk), carbonated beverages, coconut water
Soups	All	Strained	Fat free broth
Desserts	Custards, kheer, puddings	Custards, ice cream plain gelatin	Plain gelatin

5.2.3. Restricted diets:

Restricted diets are a class of special diets that limit or restrict the amount of specific nutrients like calories, fats, salt and other substances based on the patient's medical needs. For example a restricted fat diet allows low fat version of milk, cheese and ice cream but does not place limit on the amount of fresh fruits and vegetables a patient may consume.

5.2.4. Regular diets:

Regular diets also known as normal diets or house diets are used to maintain or achieve the highest level of nutrition in patients who do not have special needs related to illness or injury. This kind of diet is used for ambulatory or bed patients. While regular diets are not customized to cater to personal choices, they are altered to meet the needs of the patient's age, condition

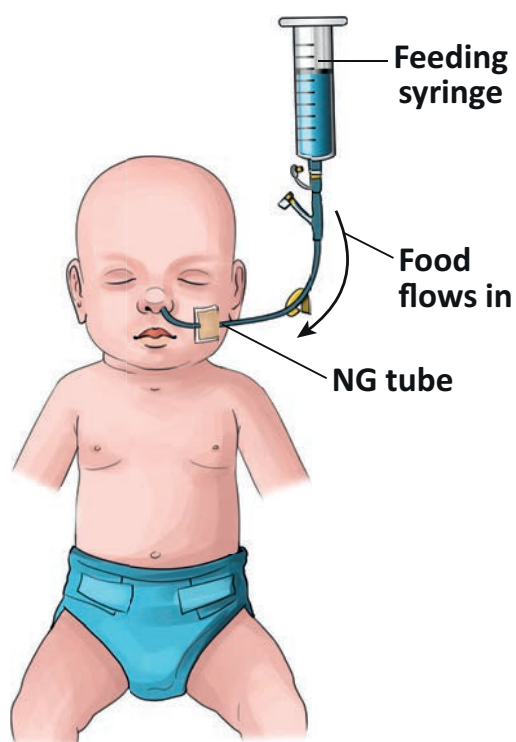
and personal beliefs. The regular hospital diet is simple in character and preparation. This diet is easily digested. It gives maximum nourishment with minimum effort to the body. The diet is well balanced, adequate in nutritional value and attractively served to stimulate a possible poor appetite. This diet gives 1800-2000kcal and 42-45g of protein.

5.3. Special feeding methods:

In instances when a patient is unable to ingest food orally, through any of the routine hospital diets, special feeding methods are used to supply the adequate nutrients.

Resorting to special feeding methods are due to the below reasons:

- ❖ An acute illness which does not allow the patient to eat normally.
- ❖ Decreased appetite as side effects of drugs.
- ❖ Anorexia.
- ❖ Difficulties in swallowing due to oral / laryngeal cancer, paralysis of swallowing muscles as in diphtheria and poliomyelitis.



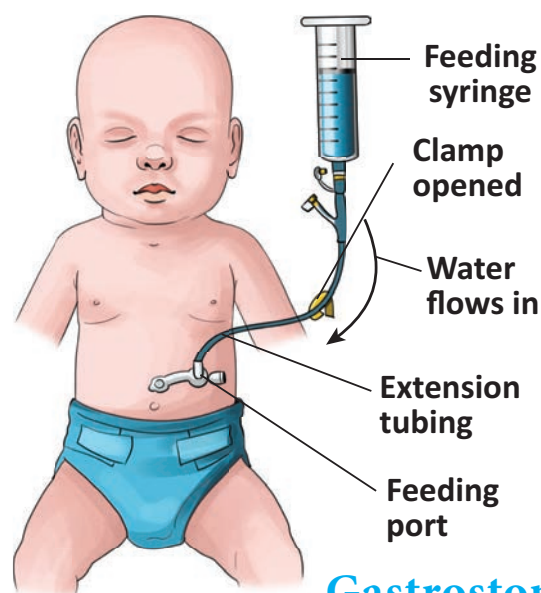
Nasogastric

- ❖ Some type of surgery that interferes with eating.
- ❖ Short bowel syndrome.
- ❖ Very low birth weight in infants
- ❖ Severe malnutrition or malabsorption syndrome.
- ❖ Semi- conscious or unconscious patients.
- ❖ GI problems interfering digestion and absorption of food.
- ❖ Chronic neurological problems.
- ❖ Mechanical dysphagia.
- ❖ Gut dysfunction.
- ❖ Kidney disorders.

Types of special feeding methods:

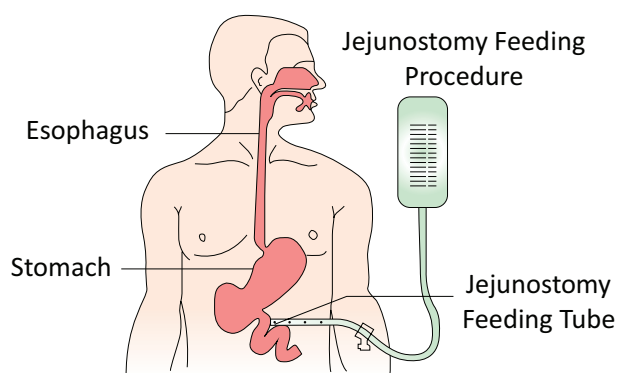
5.3.1. Enteral or tube feeding:

Tube feeding is when a special liquid food mixture containing the necessary nutrients like protein, carbohydrates, fats, vitamins and minerals, is given through a tube into the stomach or duodenum. The process can be by insertion of a tube into the nose – nasogastric or nasoenteral feeding or surgically inserting into the stomach (duodenum – gastrostomy or jejunostomy).



Gastrostomy

Jejunostomy



Infusion techniques :

- **Continuous method** - It implies continuous feeding through tubes by using a gravity flow or infusion pump.
- **Cyclic method** - This implies following a cycle of infusion by “off and on” periods. For example infusion is on for 8 hours and then is stopped for 16 hours.
- **Interrupted method** – this is like cyclic method but with regular interruptions like 6 hours on and 6 hours off periods.
- **Bolus method** – when a large feed is administered in a short time for example 250 cc in 15 minutes.



Types of enteral feeds :

1. Natural liquid feeds

These comprise milk – (whole or skimmed), egg mixtures, sugar, molasses, strained cooked cereals, strained fruit juices, coconut water, vegetable oil, cream, non fat dry milk.

2. Blenderized feeds

Foods which cannot be swallowed are blended in a high speed blender into a smooth paste which is reconstituted with water to make a thin liquid.

3. Commercial polymeric mixtures

These contain all the carbohydrate, protein, fat, water, electrolytes, micro nutrients and fibre required by a stable patient

4. Elemental feeds

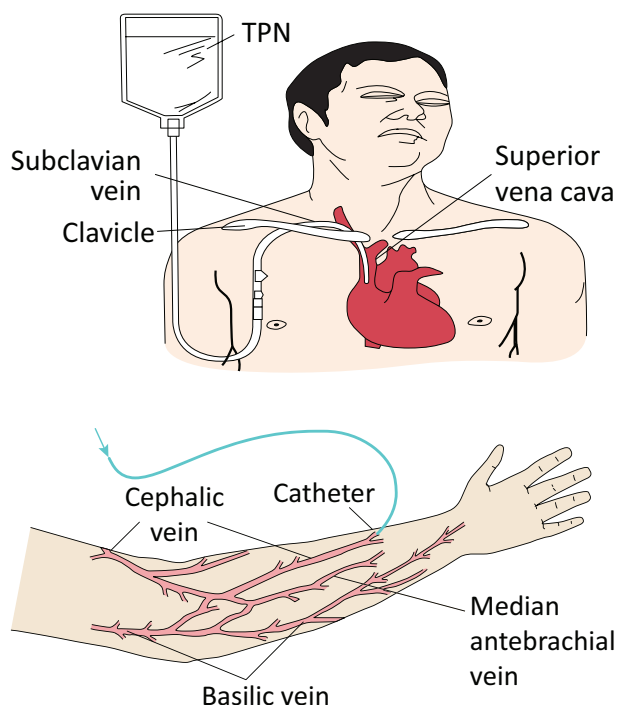
They are commercially predigested mixtures of amino acids, dextrans, sugars, electrolytes, vitamins and minerals with small amount of fat.

Enteral Formula Categories Polymeric



5.3.2 Parenteral Nutrition

It is another type of special feeding method where the patient is supplied the required nutrients intravenously, directly into a vein.



Types of Parenteral Nutrition	
Total Parenteral Nutrition (TPN)	is the feeding method when no significant nutrition is obtained by other routes.
Peripheral Parenteral Nutrition (PPN)	is the feeding method when administered through vein access in a limb, rather than through a central vein.

5.3.3. Feeding solutions used are

Glucose, Emulsified fat, crystalline amino acids, Vitamins (B 12, folic acid and K) electrolytes (sodium, chlorine, phosphorus, potassium, calcium and magnesium) trace minerals (zinc, copper, chromium, manganese and iodine) water.



5.4. DIETITIAN

A dietitian (also known as a clinical nutritionist) is a health professional who is qualified to give accurate advice and information on all aspects of nutrition and diet. Dietitians apply knowledge of food, nutrition and other related disciplines such as biochemistry, physiology and social science to promote health, prevent disease and aid in the management of illness.

Definition

A dietitian is a person with a qualification in nutrition and dietetics recognised by the national authority. The dietitian applies the science of nutrition to the feeding and education of groups of people and individuals in health and disease.

5.4.1. Administrative Dietitians

Administrative dietitian, called as "Food service systems management dietitian", is a member of the management team and is responsible for the nutritional care of groups through the management of food service systems providing optimal nutrition and quality food.

Typical responsibilities of an Administrative Dietitians include:

- Planning, controlling, and evaluating food service.



- ô Managing budget resources.
- ô Establishing standards of sanitation, safety, and security;
- ô Developing menus and evaluating client acceptance;
- ô Developing specifications for the procurement of food, equipment, and supplies;
- ô Planning layout designs and determining equipment requirements.
- ô Conducting studies to improve the operations, efficiency, and quality of food service systems.

5.4.2 Clinical Dietitians

A clinical dietitian is a member of the health care team and is primarily concerned with

therapeutic diets for individuals or groups who are located in hospitals, normal and extended care facilities, and long-term care facilities.

The clinical dietitian assesses nutritional needs and the nutritional status of individuals through dietary histories of individuals, laboratory values, anthropometric tests and similar methods.

counsels individuals and families on dietary plans, adapting plans to the individual's therapeutic needs and life style, participates in 'health team rounds' and serves as the consultant on nutritional care, compiles or develops educational materials and uses them as an aid in nutrition education, interprets and utilizes pertinent current research related to nutritional care.

The largest percentage of dietitians are clinical dietitians involved in patient care, and may be responsible for one or more wards

or clinics which treat patients with general or specialized problems, such as kidney disease, diabetes, gastro-intestinal disease, spinal cord injury and numerous others.

The area of critical care and nutrition support requires highly specialized knowledge on the part of the clinical dietitian in nutritional assessment, parenteral and enteral nutrition and critical care delivery systems.

5.4.3 Community Dietitian

The community dietitian functions as a member of the community health team, assessing the nutritional needs of individuals and groups within the community. Planning, coordinating and evaluating the nutritional component of health care services. The community dietitian, is based in a hospital and participates in out-placement programs for patients in private homes, group care facilities or nursing homes. The dietitian monitors and evaluates the nutritional services provided to these patients.

Duties of a Community Dietitian include:

- Developing and implementing a plan of care based on nutritional needs and available sources
- Evaluating food service systems and making recommendations
- Planning and conducting studies promoting and providing training in nutrition.

5.4.4. Research Dietitian

The primary purpose of a Research Dietitian is to plan, investigate, interpret, evaluate and expand knowledge in one or more areas of dietetics.

Research dietitians initiate, plan, carry out, and interpret their own research. It should also be noted that clinical dietitians are frequently called upon to assist physicians in

experimental or research projects of limited scope, such as evaluating the course of a given diet on the status of a patient.

5.4.5. Teaching Dietitian

The teaching dietitian usually has advanced preparation in dietetics or education, and is responsible for planning, conducting, and evaluating training programs, which may include responsibility for an internship program. The responsibilities for teaching varies. For example, the continuing development of the professional dietetic staff, the in service training of the non professional staff and the instruction for patients is the function of all dietetic services. However, there are some situations where one or more dietitians are involved in the planning and conducting of training for dietetic interns, coordinated undergraduate students, medical students, medical and surgical interns, nurses, nursing students, house staff, and others in the allied health services.

5.4.6. Consultant Dietitian



A consultant dietitian, with experience in administrative or clinical dietetic practice, affects the management of resources by providing advice or services in nutritional care. The consultant dietitian performs functions such as evaluating food service systems and nutritional care plans, developing menus, budgets, records systems and educational materials. Recommending layout design and equipment needs, as well as sanitation, safety and security procedures. Counseling clients and consulting with health care teams.

5.5.1. Role of a dietitian

1. Identifying nutrition problems and assessing the nutritional status of patients in a clinical setting.
2. Developing diet plans and counseling patients on special diet modifications.
3. Assessing, promoting, protecting, and enhancing the health of the general public in a community setting and providing strategies for prevention of nutrition-related diseases.
4. Managing a cost effective food production operation, distributing high quality meals/snacks, monitoring sanitation and safety standards in a food service setting.
5. Operating private consulting practices to provide expertise in nutrition, as well as promote health and prevent disease.
6. Working with individuals, groups, workplaces and media to provide dietary advice for healthy living.
7. Working with food and pharmaceutical companies to provide research, develop products, educate consumers, promote and market better food and nutritional products in a business setting.
8. Teaching nutrition, food chemistry, or food service administration to students in any health profession and at all levels of education.

5.5.2. Responsibilities

1. Be listened to and treated with respect and consideration.
2. Services without exploitation.
3. Services without discrimination, of age, sex, culture, ethnicity, religion, political belief, sexual orientation or health status.



4. Safe and high quality services supported by current evidence based knowledge.
5. Be included within decisions and choices about their treatment or care.
6. Receive sufficient information, in a form which they can understand, about their condition and its treatment options to allow them to make informed decisions and act on advice.
7. Be referred to another practitioner where another opinion or specialist service is required or requested.
8. Grant, withhold or withdraw consent to treatment or the performance of any procedure at any stage during a course of treatment or care.
9. Raise any concerns and have these addressed.
10. Have information relating to them kept confidential and released to others only with their permission or when the law or the safety of the public requires release.
11. Receive a copy of the results of any tests and analyses conducted.
12. Have a copy or summary of their records sent to another practitioner when required.
13. Receive an itemised account detailing fees and charges.
14. Complain without fear of any repercussions; and
15. Access a formal complaints process if an issue cannot be resolved with the practitioner.

5.5.3. Code of ethics of dietitians are given as follows:

- The dietetic practitioner avoids discrimination against other individuals on any basis.
- Fulfills professional commitment in good faith.
- Maintains confidentiality of information. Compiles with all laws and regulations concerned.

5.6. Use of computer in diet counseling.

5.6.1. Interview Techniques

- a) If the software is well written the computer can carry on a friendly informatics dialogue with the patient.
- b) Utilization of branch functions in the program design ensures that nothing is pertinent are unanswered.
- c) Computerized interviewing saves professional time and obtains patients responses that are not biased.
- d) Patients are honest about answering embarrassing questions by a computer than by a human interviewer.
- e) Programs can collect information directly from the patients, summarize the relevant nutritional data and provide a printed summary before the patient is seen.

5.6.2. Artificial Intelligence (AI)

Computers are programmed to make decisions within a limit. This is useful in assisting nurses and dietitians in diagnosing nutritional problems, interpreting diagnostic tests, detecting genetic inborn errors and isolating drug-nutrient problems.

5.6.3. Nutrition care plan

Once the interview is conducted and nutritional assessment is analyzed a care plan must be devised.

- a) Computers through their ability to analyse diet information, plan diets that meet the patients specific nutrient requirements.

- b) The computer can teach patients about the background of their medical disorder, reinforce information on their therapeutic diet, help patients apply diet requirements to their life style and make necessary diet changes.

5.6.4. Bed side Monitoring

Computer use include collecting patient's data. ECG analysis, urine output measurements and drug doses at bed side.



5.6.5. Follow-up

Microcomputers provide instant access to medical records, to schedule tests and retrieve laboratory data.

5.6. The actual instruction as the user sees in a computer is divided into:

1. **'Master file'** which stores patients information like age, sex, address, height, weight, patient number and condition.

2. **Food site** which stores information on food items with their calories, carbohydrates, protein and fat value. The food items are arranged alphabetically under the meal times. The quantity per serving and amount of individual serving will be displayed. Provision for adding and deleting food items is built in.

The diet counselling system begins with patients personal information. The counselling program is divided into 3 sections.

I. Analysis of food intake for a day

II. Summary

III. Printout

I. Analysis of the food intake

This assists the subject to sequentially list all the food items at meals and estimate quantities.

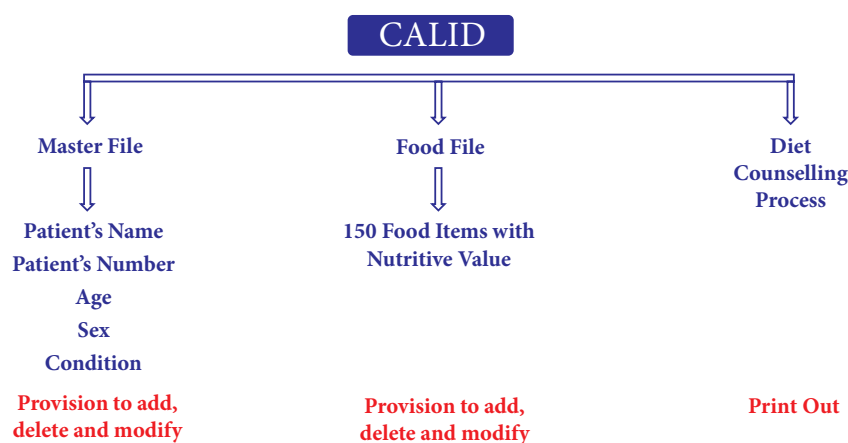
II. Summary

The summary would give the intake for the day for energy, carbohydrate, protein, fat along with the recommended dietary intake.

III. Printout

The printout would give the list of foods to be avoided and recommended along with the quantity per serving. The entire program is presented in Fig.

Computer aided learning in dietetics – CALID



GLOSSARY

CALID:	Computer Aided Learning in Dietetics
Diet therapy:	the role of food and nutrients in the treatment of various diseases
Dietitian:	refers to a health professional who is qualified to give accurate advice and information on all aspects of nutrition and diet
Enteral or tube feeding:	Tube feeding is when a special liquid food mixture containing the necessary nutrients like protein , carbohydrates, fats, vitamins and minerals , is given through a tube into the stomach or duodenum.
Parenteral Nutrition:	It is a type of special feeding method , where the patient is supplied the required nutrients intravenously , directly into a vein
Routine hospital diets:	Hospital diet is an essential part of modern therapy in all medical departments. The integration of nutritional therapeutic problems into the treatments of patients requires optimal scientific and practical forms of organization of nutrition in the clinic.
Therapeutic diet:	is the branch of Dietetics concerned with the use of foods for therapeutic purpose.



Evaluation

I . Choose the correct answer

1. Identify the clear fluid diet
 - a .gruels
 - b. milk
 - c . barley water
 - d . glucose
2. Which of the following is a soft diet ?
 - a .ripe banana
 - b. dalpayasam
 - c . barley water
 - d . strained custard
3. Each day nasogastric tube feeding can be given at a maximum of
 - a . 1 time
 - b. 2 times
 - c . 3 times
 - d . 4 times
4. Passing a tube into the stomach or duodenum through nose is called
 - a . naso gastric
 - b. naso entetric
 - c .naso duodenal
 - d .naso jejunal
5. Say true or false :
 - a. Normal diet of an individual is the basis for planning therapeutic diet
 - b . TPN is the preferred mode of feeding for a sick individual whose GI tract is functioning

II.Short answers

1. Define diet therapy
2. What is a clear liquid diet?
3. What is tube feeding?
4. List the types of tubes

5. What is parenteral nutrition
6. List the types of parenteral nutrition
7. Define dietitian.
8. List the types of dietitians
9. What are the uses of computer in diet counselling?
10. What is restricted diet?



III.Brief answers

1. List the advantages of therapeutic diets.
2. What are the dietary modifications of normal diet ?
3. Mention the various liquid diets.
4. List the roles of dietitian.
5. What are the code of ethics of dietitian?

IV.Detailed answers

1. Explain routine hospital diets in detail
2. Describe special feeding methods
3. Discuss the responsibilities of dietitian
4. What are the types of enteral and parenteral feeds ?
5. Explain the application of computers in diet counselling.

