

**SARDAR PATEL UNIVERSITY
VALLABH VIDYANAGAR**



**SYLLABUS EFFECTIVE FROM: 2017-18
POST GRADUATE DIPLOMA (DIETETICS)
SEMESTER-II**

PGDD-208: MEDICAL NUTRITION THERAPY-II (Credits-3, 3hrs, Marks-100)

Objectives:

The course will enable the students to:

- ❖ Understand the etiology, physiologic and metabolic anomalies of acute and chronic diseases and patient needs.
- ❖ Know the effect of the various diseases on nutritional status and nutritional and dietary requirements.
- ❖ Be able to recommend appropriate nutritional care for prevention / and treatment of the various diseases.

Contents:

Etiopathophysiology, metabolic and clinical aberrations, complications, prevention and recent advances in the medical nutritional management of:

1. Diseases of Circulatory system

(A) Hypertension:

- Types, role of diet in the management of various types of hypertension
- Consequences & complications of hypertension including cerebro vascular diseases
- Role of diet in management of hypertension & its complication
- Non pharmacologic treatments like life style changes, behavior modification, yoga, meditation & others in control of hypertension
- Use of salt alternatives, their composition & control, indications & long term effects of regular consumption

(B) Coronary heart disorders / Ischemic heart disease:

Heart function, tests & their interpretations

- Hyperlipidemias: Types, classification, role of diet in the management of various types of hyperlipidemias, non pharmacologic treatment aiding diet therapy like exercise, life style changes

Atherosclerosis: Types & risk factors, role of diet, diet after by pass surgery & heart attacks, prevention — control of risk factors & life style changes

2. Diabetes Mellitus & Hypoglycemia

(A) Diabetes Mellitus

- Types / classification, symptoms & diagnosis
 - Role of diet in the management of various types of diabetes mellitus & preparation of diet plans (clinical vs. chemical control)
 - Secondary complications of diabetes mellitus & its control

- Non pharmacological treatments aiding diet therapy in the management of diabetes mellitus.
- Tests used for diagnosing & monitoring diabetes mellitus including glucose monitoring at home.
- Insulin therapy, oral hypoglycemic agents used for diabetes control & role of diet.
- Diabetes in pregnancy, surgery, illness, diabetic coma, insulin reaction
- Use of sweet alternatives, their complications & long term effects of regular consumption & control indications.
- Patient education & counseling

(B) Hypoglycemia:

- Classification, symptoms, post prandial or reactive hypoglycemia, idiopathic hypoglycemia
- Dietary treatment

3. Neurological disorders

- Diet therapy for the following: Parkinson's, Alzheimer's, Multiple sclerosis, Epilepsy, Migraine.
- Feeding problems in patients suffering from neurological disorders and its effect on their nutritional status.

4. Renal Disorders

- Renal function: Normal & deranged renal function tests & their interpretation
 - Glomerulonephritis
 - Nephrotic syndrome
 - Acute & chronic renal failure
 - Diagnosis . Renal transplant
 - Nephrolithiasis /Renal calculi
 - Dietary management of renal disorders & its complications

5. Inborn errors of metabolism

Biochemical basis & nutritional management of:

- phenylketonuria
- Tyrosinosis
- Maple syrup urine disease
- Galactosemia
- Infections between drugs, nutrients & nutritional status:
 - Drugs used for infections, inflammations & fevers
 - Drugs used for diabetes mellitus — oral hypoglycemics & insulin
 - Drugs used for hypertension / Renal control ; Diuretics, K sparing, Ca channel, blockers ACE inhibitors etc.
 - Drugs used for reducing cholesterol in blood

6. Cancer

- Cancer, types of etiological factors
- Role of diet in prevention of all types of cancers
- Nutritional management of cancer patients undergoing:
 - Radio therapy
 - Chemotherapy
 - Diet to be followed after treatment
 - Cachexia

- Nutritional care of geriatric population:
 - Needs & nutritional care of geriatric population
 - Nutritional care during & after period of dentition / other conditions
 - Dietary tips for elderly.

Course Learning Outcomes:

- ❖ Get knowledge of dietary modification for metabolic disorder of various diseases.
- ❖ Describe dietary modification according patients diseases condition

References:

1. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.
2. Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9 Edition., Williams and Wilkins.
3. Williams, S.R. (1993): Nutrition and Diet Therapy, **7th** Edition, Times Mirror/Mosby College Publishing.
4. Davis, J. and Sherer, K. (1994): Applied Nutrition and Diet Therapy for Nurses, 2 Edition, W.B. Saunders Co.
5. Guyton, A.C. and Hall, i.E. (1999): Textbook of Medical Physiology, **9th** Edition, W.B. Saunders Co.
6. Ritchie, A.C. (1990): Boyd's Textbook of Pathology, 9th Edition, Lea and Febiger, Philadelphia.
7. Fauci, S.A. et al (1998): Harrison's Principles of Internal Medicine, 14 Edition, McGraw Hill.
8. World Cancer Research Fund (1997). Food, Nutrition and the Prevention of Cancer- A Global perspective, Washington E.D. WCRF

Journals and Other Reference Series

1. Nutrition Update Series
2. World Review of Nutrition and Dietetics
3. Journal of the American Dietetic Association
4. American Journal of Clinical Nutrition
5. European Journal of Clinical Nutrition
6. Nutrition Reviews

PGDD: 209 PRACTICALBASED ONPGDD-208

(Credits-3, 6hrs, Marks-100)

Objectives:

This course will enable students to:

- ❖ Prescribe diets and counsel patients to provide appropriate therapeutic nutritional care and counseling
- ❖ Develop standards of dietetic practice For each of the topics, focus on various diseases using a case study approach.
Planning and preparation of diets for patients with common multiple disorders and complications and discharge diet plans.

Contents:

1. Diseases of Circulatory System

Formulation of preparations with modified fat and sodium Formulations of content. Low cholesterol and low sodium diets for cardio vascular diseases- acute, chronic and Convalescent conditions. Diet in Hypertension. Progressive dietary management for cardiac transplantation and cardiac surgery.

(a) Planning, preparing diets for Hypertension:

- Diet for mild / stage I hypertension
- Diet for stage II & III hypertension
- Diet for stage IV hypertension
- Diet for salt insensitive hypertension
- Diet for patients with cerebro vascular diseases.

(b) Planning, preparing diets for Hyperlipidemias, coronary / Ischemic heart diseases

- Diet for hyperlipidemias
- Diet for prevention of cardiovascular diseases
- Hospital diet for patients after a heart attack
- Maintenance diet for patients after an heart attack / bye pass surgery.
- Hospital diet for patient preparing for bye-pass surgery.

2. Diseases of Carbohydrate Metabolism

Diabetes Mellitus: A. Formation of food preparations, diabetics, snacks, desserts and beverages, B. Without Insulin, C. With Insulin- Adult and juvenile, D. Diabetes in Pregnancy, E. Diabetes and Illness.

(a) Planning, preparing diets for Diabetes mellitus:

- Diet for under weight diabetic male
- Diet for normal weight diabetic male
- Diet for overweight diabetic male
- Diet for diabetic pregnant women
- Diet for patient with diabetic coma
- Dietary treatment for hypoglycemia

(b) Hypoglycemic conditions

3. Protein Modifications and mineral

Modification in Renal Disease. Glomerulonephritis — acute and Chronic Nephrotic Syndrome, Nephrosclerosis, Nephrotithiasis, Renal Failure- Acute and Chronic, Dialysis, Renal Transplant

(a) Planning, preparing diets for Renal disorder:

- Diet for acute nephritis
 - Diet for acute nephrosis
 - Diet for chronic renal failure (CRF) patient on conservative treatment
 - Diet for CRF patient on dialysis
 - Diet for nephrolithiasis

4. High Risk Management (Hospital based)

Nutrition Assessment, Review of Existing Practices in Hospitals, Oral supplements indigenous! home-base and commercial for stressed patients e.g. burns, cancer, surgery, debilitated patients, management of patients with feeding problems tube feed- all forms, Elemental diets, Parenteral and Enteral Nutrition

5. Diet in Neoplasia

6. Diets for specific metabolic disorders

7. Dietary Management for patients with multiple ailments.

8. Diet in disaster.

Objectives:

This course will enable the students to:

- ❖ Understand the metabolism of nutrient in health disease and organs and tissues
- ❖ To be familiar with dietary / behavior modifications based on physiological changes occurring in disease conditions.
- ❖ To be aware of recent advances in the area of clinical nutrition.

Contents:

- 1. Nutrition and the gastro intestinal tract :**
Malabsorption and its patho-physiology, Carbohydrate intolerance. Parasitic infections, Acute and chronic infections Diarrhea, Recent advances in gastroenterology and nutrition.
- 2. Nutrition and dental health**
Structure, development and maturation Dental caries, Recent advances in role or nutrition in dental health
- 3. Nutrition and cardiovascular diseases**
Role of lipids, carbohydrates, protein, and other nutrient Bile acid metabolism, Prostaglandins
- 4. Nutrition and Immune response**
- 5. Food Intolerance and Food Allergies**
- 6. Diabetes mellitus and complications, Recent advances**
- 7. Nutrition and Renal Disease**
Nephrotic syndrome, Nephritis, ESRD, Renal Transplant, Nephrolithiasis Recent advances
- 8. Ageing and Osteoporosis**
Physiological changes with ageing, Bone health, Osteoporosis, Rheumatoid arthritis.
- 9. Nutrition and Cancer**
Carcinogenesis and Mutagenesis, Development of cancer Types of cancer and effect on metabolism and nutritional status, Nutrients and their relationship with cancer, Recent development in nutrition and cancer.
- 10. Nutrition and HIV/AIDS**

Course Learning Outcomes:

- ❖ Able to understand regarding effects of various diseases on nutritional status and nutrient requirements.

References:

1. Mahan, L.K. and Escott-Stump, S. (2000): Krause's Food Nutrition and Diet Therapy, 10th Edition, W.B. Saunders Ltd.
2. Shils, M.E., Olson, J.A., Shike, M. and Ross, A.C. (1999): Modern Nutrition in Health and Disease, 9th Edition, Williams and Wilkins.
3. Garrow, J.S., James, W.P.T. and Ralph, A. (2000): Human Nutrition and Dietetics, 10th Edition, Churchill Livingstone.

4. Williams, S.R. (1993): Nutrition and Diet Therapy, 7th Edition, Times Mirror/Mosby College Publishing.
5. Davis, J. and Sherer, K. (1994): Applied Nutrition and Diet Therapy for Nurses, 2nd Edition, W.B. Saunders Co.
6. Guyton, A.C. and Hall, i.E. (1999): Textbook of Medical Physiology, 9th Edition, W.B. Saunders Co.
7. Ritchie, A.C. (1990): Boyd's Textbook of Pathology, 9th Edition, Lea and Febiger, Philadelphia.
8. World Cancer Research Fund (1997). Food, Nutrition and the Prevention of Cancer A Global perspective, Washington E.D. WCRF

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6. Nutrition Reviews

PGDD: 211 PRACTICALBASED ONPGDD-210

(Credits-2, 4hrs, Marks-100)

Contents:

• Practicals are to be done through the following:

1. Basic preparation and handling of solution & reagent.
2. Estimation of urine bilirubin.
3. Qualitative analysis of Urine taste.
4. Estimation of Urine urea.
5. Estimation of Uric acid from Urine.
6. Estimation of Creatine from Urine.
7. Determination of blood group.
8. Estimation of Hemoglobin.
9. Measurement of blood pressure.
10. Estimation of Serum creatine.
11. Study on tools used in ECG, eco-Cardiology and x-ray.
12. Visit to Pathology Laboratory.

References:

1. Nutrition in the 20th Century Ed M. Willick
2. Current Concepts in Nutrition
3. Advances in Nutrition Research
4. Nutrition and Diabetes- Jovanovich and Peterson
5. Absorption and Malabsorption of Mineral Elements Solomons and Rosenberg
6. Nutrition and Disease — R. Jarrett.

PGDD- 212: Basic Aspect of Food Science and Food Safety (Credits-3, 3hrs, Marks-100)

Objectives:

This course will enable the students to:

- ❖ To enable the students to understand the basic principles of food groups nutrition.
- ❖ To get brief knowledge about various groups of microbes.
- ❖ To understand the importance of microorganisms in food i.e. food spoilage, food fermentation and causing food borne infections.
- ❖ Apply the theoretical aspects in ensuring food safety food quality.

Contents:

1. (A) Properties of solutions, colloids, emulsions, and stabilizers.

(B) Composition, nutritive value, cooking conditions of cereals and legumes.

2. Composition, nutritive value and effects of cooking on various protein foods, viz., meat, fish, eggs milk and milk products.

3. Composition, nutritive value, pigments and effects of cooking of fruits and Vegetables.

4. Food selection

Purchase, storage, Food handling, sanitation and hygiene

5. Sensory evaluation of foods: Factors affecting acceptability of foods, Selection of taste panel, difference and descriptive tests.

6. Convenience foods, food additives, food adulteration and Indian food laws

7. Food contamination and spoilage

a)Growth requirements and nutritional types of microorganisms – Photoautotrophs, photoheterotrophs, chemoautotrophs & chemoheterotrophs

b) Factors affecting growth- Temperature, pH, oxygen and water activity

c) Sources of food contamination- A general account

d) Spoilage of some important foods: Milk, Fruits and Vegetables, Canned food and Meat

8. Importance of microorganisms in food

a) Importance of microbes in food biotechnology: fermented foods,

- b) Food borne infections and intoxications: Definition, symptoms and prevention (Salmonella typhi, Clostridium botulinum)
- c) General account of Microbial toxins – Exotoxins, endotoxins, mycotoxins

Course Learning Outcomes:

- ❖ Able to understand the basic content of food Science.
- ❖ Design effective Food Safety Plan.
- ❖ Get Knowledge Food Hazard and Contamination.

References:

1. Swaminathan M (1985), Essentials of food & Nutrition, Vol, II, Ganesh & Co. Madras
2. Dietary allowances for Indians, New Delhi
3. Fennema, O.R.(1985). Food Chemistry 2' edition, Marcel Dekker inc N.Y.
4. N. Shakuntala Manay, M. Shadaksharaswamy(2001) Foods Facts and Principles, Ram Printograph, Delhi Printing & Publishing New Age International(P) Ltd.
5. R.A. Garg: The Food Safety & Standard Act, 2006 along with Rules and Regulation, 2011. Commercial Law Publisher (India) Pvt. Ltd
6. Knechtes P.L.: Food Safety: Theory & Practice, Jones & Bartlett Learning, USA.
7. Inteas Alli: Food Quality Assurance: Principles & Practice, CRC Press LLC.
8. Roday .S (2003) Food Hygiene & Sanitation , Tata Mc Graw Hill publication Ltd.
9. Frazier WC, Westoff DC. (1998) Food Microbiology. 4th ed. Tata McGraw-Hill Publishing Co. Ltd.
10. Garbutt John (1997) Essentials of Food Microbiology. Arnold London.
11. Geoghegan J. Banwart 'Basic Food Microbiology', Delhi, CBS Publishers and distributors.
12. James M. Jay 'Modern Food Microbiology' New Delhi, CBS Publishers and distributors.
13. Reeta Arora 'Microbiology and diseases', New Delhi, Anmol Publications Pvt. Ltd.
14. Frazier W.e. (1974), 'Food Microbiology' New Delhi 1st edition Tata Mc Graw Hill
15. Pelczar Micheal J. JR and Robert D. (1974) , Reid Microbiology' 1st edition Tata Me Graw Hill.

PGDD: 213 PRACTICALBASED ONPGDD-212 (Credits-3, 6hrs, Marks-100)

Contents:

• Practicals are to be done through the following:

1. Conditions affecting the cooking quality of cereals
2. Gelatinisation of starch.
3. Gluten formation.
4. Changes during cooking of Egg recipes involving.

5. Different methods of cooking. Pulse cooking conditions affecting cooking including soaking, germination etc.
6. Vegetable and fruit cookery.
7. Tests for adulteration of common food stuff.
8. Use of different sterilization and disinfection techniques in microbiology- Heat (moist and dry), radiations (laminar flow), filtration (membrane filters), and alcohols
9. Preparation of Culture media
10. Culture methods
11. Gram Staining
12. Investigating presence and enumeration of bacteria in samples (water and milk) by plate count, MPN and MBRT
13. Assessment of Sanitation and Hygiene of the Hostel Mess and College Canteen by using Swab and Rinse technique

PGDD-214: DIETETIC TECHNIQUES AND PATIENT COUNSELLING

(PRACTICAL)

(Credits-3, 6hrs, Marks-100)

Objectives:

This course will prepare the students to:

- ❖ Understand the principles and procedures of nutrition counseling and the role of the counselor.
- ❖ Develop an understanding how: (a) lifestyles influence health and well-being; (b) acute and chronic disease affects the emotional and psychological state and the behavior of the individuals.
- ❖ Be familiar with various techniques used in counseling.
- ❖ Be able to use various types and techniques of counseling to motivate patients to achieve well-being.

Contents:

1. Counseling — Definition, Expectations, goals, scope and limits

Counseling — Characteristics of an effective counselor, the Client - Characteristics, expectations

2. The Counseling process

Techniques for obtaining relevant information:

(1) Clinical information, (2) Medical History and General Profile, (3) Dietary

Diagnosis: Assessing food and nutrient intakes, Lifestyles, physical activity, stress, (4)

Nutritional Status, (5) Correlating relevant information and identifying areas of need:

Stage I: problem exploration and clarification,

Stage II: Developing new perspectives and setting goals,

Stage III: Implementation follow up and evolution

3. Counseling theories and Approaches: Key Concepts and Techniques

4. Counseling techniques, strategies and communication skills

Rapport building and opening techniques, Questioning, listening, reflecting, acceptance, silence, leading reassurance, non-verbal behaviors, terminating skills.

5. Group Counseling

6. Developing resources and aids for education and counseling

7. Working with

Hospitalized patients (adults, pediatric, elderly, handicapped), adjusting and adopting to individual needs, Outpatients (adults, pediatric, elderly, handicapped), patients education, techniques and modes.

8. Follow up Monitoring and Evaluation of outcome: Home visits.

Reference: -

1. Joshi S. A. 'Nutrition and Dietetics', New Delhi, Tata Mc Graw Hill Publishing Co. Ltd.
2. Robinson 'Nonnal and Therapeutic Nutrition' New Delhi, Tata Mc Graw Hill Publishing Co. Ltd.
3. Crampton E.W. and L. E. Lloyd (1915), 'Fundamentals of Nutrition', San Francisco W. H. Freeman
4. Davidson S.R, Passmore and IF. Brock (1986), 'Human Nutrition and Dietetics' London Churchill, Livingstone
5. Antia F.P (1986), 'Clinical Dietetics and Nutrition', Bombay, 3rd edition, Oxford University Press.
6. Jelliff B.B. 'Assessment of Community Nutriion Status'