

Maulana Abul Kalam Azad University of Technology, West Bengal
(Formerly West Bengal University of Technology)
Syllabus for M. Sc. Dietetics & Nutrition
(Effective for Academic Session 2018-2019)

Second Semester

MDN 201: DIETARY MANAGEMENT-I

Therapeutic nutrition

- Therapeutic Diets
- Constructing Diets
- Routine Hospital Diets

Enteral nutrition

- Various sites for enteral nutrition
- In brief, discussion on Ryles tube and its care
- Types of feeds, advantages and disadvantages of home based feed
- Commercial formula feed – incorporation of easily digestible food
- Requirement of nutrients according to problems e.g. renal, respiratory etc.

Total parental nutrition

- The importance of TPN
- Long term effect of its use
- Site of TPN and its care
- Composition

Non communicable disease-

- a Diabetes (Type -I and Type-II)-
Epidemiology, pathophysiology, causes & dietary management

- b. Hypertension–
Epidemiology, pathophysiology causes & dietary management

- c. Hyperlipidemia-
Epidemiology, pathophysiology causes & dietary management

- d. Atherosclerosis
Epidemiology, pathophysiology causes & dietary management

- e. Nutritionalanaemia
Epidemiology, pathophysiology causes & dietary management

- f. Cancer
Epidemiology, pathophysiology causes & dietary management

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g. Constipation

Epidemiology, pathophysiology causes & dietary management

h. Foodallergy

Epidemiology, pathophysiology causes & dietary management.

1. Gastro Intestinal Diseases

a. Cholera

Epidemiology, Pathophysiology, Cause and dietary management

b. Diarrhoea

Epidemiology, Pathophysiology, Cause and dietary management

c. Dysentery

Epidemiology, Pathophysiology, Cause and dietary management Flatulence

Epidemiology, Pathophysiology, Cause and dietary management

d. Junundice

Epidemiology, Pathophysiology, Cause and dietary management

e. Hepatitis

Epidemiology, Pathophysiology, Cause and dietary management

f. Gastritis

Epidemiology, Pathophysiology, Cause and dietary management

g. *Ulcer*

Epidemiology, Pathophysiology, Cause & dietary management

h. *Irritable Bowel Syndrome*

Epidemiology, Pathophysiology, Cause & dietary Management

i. Colitis Epidemiology, Pathophysiology, Cause & dietary management

2. *Rheumatic diseases*

a. Arthritis Epidemiology, Pathophysiology, Cause & dietary management

b. *Osteoarthritis*

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Epidemiology, Pathophysiology, Cause & dietary management
c. Lupusarthritis

Epidemiology, Pathophysiology, Cause & dietary management

MDN 202: BIOSTATISTICS

Course Learning Outcomes

Student will be able to-

1. Learn how to differentiate between the qualitative and quantitative methods of analysis of data
2. Proper application of data reduction strategies and illustrate data using various graphical methods
3. How to use appropriate parametric and non parametric statistical tests

Content:

- **Introduction to statistics**

Basic principles and concepts in statistics

Orientation to qualitative and quantitative research procedures

Measurement and computation- Scales of measurement, Reliability and validity

- **Organisation and presentation of data**

Qualitative and quantitative data- Coding & data reduction strategies

Organisation of Data: Frequency distributions vs. thematic analysis

Percentage, percentile ranking and frequencies

Univariate, bivariate and multivariate tables

Graphic representation: Graphs, diagrams and charts

- **Descriptive Statistics**

Applications of descriptive statistics

Measures of Central tendency

Measures of Dispersion

Skewness and Kurtosis

Correlation and Regression

- **Probability and normal distribution**

Basic principles and applications of probability

Binomial and Poisson Distribution

Normal curve

- **Statistical tests**

Testing hypotheses: Levels of significance and p values

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Errors in hypothesis testing: Type I, Type II
Sampling distribution
Standard scores, calculation and application

- **Concept of parametric and non-parametric tests, statistical tests and level of measurement**

Parametric tests of difference: z test, T test.

Non-parametric tests of difference: Mann-Whitney, Sign, Median, and Kruskal-Wallis

Non-parametric tests of association: Spearman's r

Chi-square test

ANOVA

Reference:

Agresti, A. & Franklin C.A. (2009) *Statistics: The Art and Science of Learning from Data* (Second Edition) Boston, MA: Pearson Prentice Hall, ISBN 978-0-13-513199-2

Bernard, H.R. (2000). *Social Research Methods: Qualitative and Quantitative Approaches*. Thousand Oaks, CA: Sage.

Black, J.A. and Champion, D.J. (1976). *Methods and Issues in Social Research*. New York: John Wiley and Sons.

Blaxter, L., Hughes, C, and Tight, K. (1999). *How to Research*. New Delhi: Viva books.

Diez, D. M., Barr, C. D., Cetinkaya-Rundel M. (2015). *OpenIntro Statistics*:((Third Edition). CreateSpace Independent Publishing Platform. ISBN-10: 194345003X, ISBN- 13: 978-1943450039 <http://www.openintro.org/stat/textbook.php>.

Elmes, D.G., Kanowitz, B.H. and Roediger, H.L. (1989). *Research Methods in Psychology* (Third Edition). New York: West Publishing Company.

Fowler, F.J. (1988). *Survey Research Methods. Applied Social Research Methods Series, Vol. 1*. Newbury Park, CA: Sage.

Greene, S. and Hogan, D. (Eds.). (2005). *Researching Children's Experiences: Methods and Approaches*. London: Sage.

Gordis L. (2013) *Epidemiology*. (Fifth Edition). Philadelphia, PA: Saunders Elsevier,

Minium, E. W., King, B. M., & Bear, G. (1995/2004). *Statistical Reasoning for Psychology and Education*. New York: Wiley and Sons.

Muijs, D. (2004). *Doing Quantitative Research in Education with SPSS*. London: Sage.

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MDN203: ADVANCED NUTRITION

Course Learning Outcomes:

After doing this course the student will be able to:

1. Evaluate critically and derive requirements for specific macronutrients.
2. Understanding the critical periods in growth and development and impact of malnutrition.
3. Assessment of nutritional status of children and adults.

Contents:

- Understanding nutrition
- Energy metabolism Basal and resting metabolism –influencing factors. Methods to determine energy requirements and expenditure. Thermo genesis, adaptation to altered energy intake, latest concepts in energy requirements and RDA-ICMR and WHO
- Basis for computing nutrient requirements - latest concepts in dietary recommendations, their uses and limitations. Body fluids and water balance - Body water compartments - Regulation of water balance - disorders of water balance - Body composition Methods of study - compositional changes during life cycle - nutritional disorders and their effect body composition.
- Lipids – Classification and Functions, Review of metabolism of Lipid, Concepts of visible and invisible fats, EFA, SFA, MUFA, PUFA – sources and physiological functions.
- Proteins – Classification and Functions, Review of metabolism of Protein, Concepts of essential and non-essential amino acids – their role in growth and development.
- Carbohydrates: Occurrence and physiological functions, Review of metabolism of carbohydrates. Lactose intolerance. Dental caries. Sugar alternatives. Role of dietary fiber in health and disease
- Macro minerals: Calcium, phosphorus magnesium, sodium, potassium, chlorine and Micro minerals: Iron, zinc, copper, selenium, chromium, iodine, manganese, Molybdenum and fluoride. Ultra trace minerals: arsenic, boron, nickel, silicon, vanadium and cobalt.

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- Water soluble vitamins: vitamin C, thiamine, riboflavin, niacin, pantothenic acid, biotin, folic acid, vitamin B12, vitamin B6.
- Fat soluble vitamins: Vitamin A, D, E&K.
- Detoxication –Definition, xenobiotics, enzyme systems involved mechanism of detoxification.
- Nutrition for older children and adolescent
- Menu planning, food groups, balanced diet.
- Nutritional requirement for special condition

Reference:1. Shils, M.E., Olson, J. Shike, M. and Roos, C (2003). Modern Nutrition in Health and Disease, 9th edition Williams and Williams.A Beverly Co. London.

2. Bodwell, C.E..and Erdman, J.W. (2004) Nutrient Interactions. Marcel Dekker Inc. New York

3. Sareen, S, James, J (2005). Advanced Nutrition in Human Metabolism, 4th Edition, Thomson Wordsworth Publication, USA.

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MDN 204: WOMEN HEALTH & NUTRITION:

Course Learning Outcomes:

After doing this course the student will be able to:

1. Evaluate critically and derive requirements for pregnant and lactating women.
2. Understanding the critical periods in growth and development of fetus.

Contents

- Factors (non-nutritional) affecting pregnancy outcome, importance of adequate weight gain during pregnancy, antenatal care and its schedule, Nutritional requirements during pregnancy and modification of existing diet and supplementation, Deficiency of nutrients, specially energy, iron, folic acid, protein, calcium, iodine. Common problems of pregnancy and their managements, specially - nausea, vomiting, pica, food aversions, pregnancy induced hypertension, obesity, diabetes. Adolescent pregnancy.
- Nutritional requirements during lactation, dietary management, food supplements, galactogogues, preparation for lactation. Care and preparation of nipples during breast feeding.

References:

1. Ghosh, S. : The Feeding and Care of Infants and Young Children, VHAI. 6th Ed. Delhi.
2. WHO : A growth chart for International use In Maternal and Children Health Care, Geneva.
3. Mann and Truswell : Essentials of Human Nutrition, Oxford University press.
4. Indian Council of Medical Research: Nutrient Requirements and Recommended-Dietary Allowance for Indians, New Delhi.

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MDN205: PUBLIC HEALTH AND NUTRITIONAL POLICY PROGRAMMES :

- Public health nutrition and health care system
- Nutritional problems of the community and implication in public health ,hazards of community health and nutritional status
- NutritionpolicyinIndiaandplanofaction,nationalfoodandnutritionpolicy plane of action and programme
- Population dynamics
- Major nutritional problems and management
- Primaryhealthcareofthecommunity.approchesandstrategiesforimproving nutritional status and health
- communicable and infectious disease control
- Community water and waste management
- Community food protection
- Life style and community health
- Immunization – schedule during pregnancy and childhood
- Nutrition and health care programmes for mother and child, nutritional requirements of the elderly people and dietary management to meet their nutritional needs
- Emergencies and disaster management, general concepts, disaster cycle
- Nutritionalmanagementoftargetgroupindisasterandemergenciessituation- packet food and common kitchen in post disaster period
- Rationsystemindisasteranddifferenttypesofnutritionrehabilitationdisaster management
- Assessment process for nutritional rehabilitation at post disaster period

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PRACTICAL

MDN 291 THERAPEUTIC DIET CHART PREPARATION – I

1. Non communicable disease-

- Therapeutic diet chart preparation for Diabetes, case specific
- Therapeutic diet chart preparation for Hypertension, case specific
- Therapeutic diet chart preparation for Hyperlipidemia case specific
- Therapeutic diet chart preparation for Atherosclerosis, case specific
- Therapeutic diet chart preparation for Nutritional anemia, case specific
- Therapeutic diet chart preparation for Cancer, case specific
- Therapeutic diet chart preparation for Constipation, case specific
- Therapeutic diet chart preparation for Food allergy, case specific

2. Gastro Intestinal Diseases

- Therapeutic diet chart preparation for Cholera, case specific
- Therapeutic diet chart preparation for Diarrhoea, case specific
- 2.3 Therapeutic diet chart preparation for Dysentery, case specific
- 2.4 Therapeutic diet chart preparation for Flatulence, case specific
- 2.5 Therapeutic diet chart preparation for Jaundice, case specific
- 2.6 Therapeutic diet chart preparation for Hepatitis, case specific
- 2.7 Therapeutic diet chart preparation for Gastritis, case specific
- 2.8 Therapeutic diet chart preparation for Ulcer, case specific
- Therapeutic diet chart preparation for Irritable Bowel Syndrome, case specific
- Therapeutic diet chart preparation for Colitis, case specific

3. Rheumatic diseases

- Therapeutic diet chart preparation for Arthritis, case specific
- 3.2 Therapeutic diet chart preparation for Osteoarthritis, case specific
- 3.3 Therapeutic diet chart preparation for Lupus arthritomatosis, case specific.

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**MDN 281 : INDUSTRY ASSIGNMENT: PUBLIC HEALTH AND NUTRITIONAL
STATUS ASSESSMENT:**

Course learning outcome:

The student will be able to gain hands on experience of working in various institutions related to the area of Food and Nutrition