

السنة الثانية – الفصل الثاني

الغدد الصم والاستقلاب

Endocrinology and Nutrition

(0500222)

(3) Credit Hours

Objectives:

By the end of this course students are expected to understand:

1. Structures of various endocrine glands, development and histology.
2. The normal functions, physiologic roles and mechanisms of action of hormones
3. Hormone regulation and pathophysiological effects of abnormal endocrine functions
4. Pathogenesis, morphological changes and complications of diseases affecting the endocrine system
5. The use of hormones and drugs in diagnosis and treatment of endocrine disorders.
6. Clinical application of major endocrine functional changes.

Content Summary:

Histology	8	teaching sessions
Biochemistry	7	teaching sessions
Pathology	8	teaching sessions
Physiology	14	teaching sessions
Pharmacology	8	teaching sessions
Nutrition	23	teaching sessions
Clinical Aspect	4	teaching sessions

Total 72 teaching sessions

Methods Of Instruction:

- Lectures
- Practical Classes

Evaluation and Distribution of Marks:

- Mid-term exam 40 %
- Practical 10 %
- Final end- course exam at the end of the semester 50%

Learning (Specific) Objectives of the module:

After studying the material covered in the lectures, practicals, the student is expected to achieve the following specific objectives.

NUTRITION

1. Metabolism, general concepts and design, bioenergetics and the role of ATP
2. Stages in energy extraction from food stuff, activated carriers & the role of NADPH
3. Glycolysis
4. Anaerobic Glycolysis, metabolism of fructose, galactose.
5. Gluconeogenesis: reciprocal regulation of glycolysis and gluconeogenesis
6. Pentose phosphatase pathway, glycogen breakdown
7. Glycogen synthesis, regulation of metabolism
8. β Oxidation of fatty acids
9. Oxidation of unsaturated & Odd-chain fatty acids
10. Ketone bodies and ketoacidosis
11. Fatty acids biosynthesis
12. Modification of fatty acids by elongation.

- 13 Triacylglycerol synthesis and mobilization
- 14 Lipoprotein and plasma lipid transport
- 15 Cholesterol metabolism
- 16 Biosynthesis of membrane lipids.
- 17 Amino acid metabolism, transmission, deamination
- 18 Urea cycle
- 19 Purine and pyrimidines biosynthesis and degradation
- 20 Integration of fat metabolism, well fed and fasting states.
- 21 Macronutrition
- 22 Micronutrition
- 23. Molecular genetics of metabolism disorders

GENERAL: Introduction to endocrinology

- 24. General endocrinology (I)
- 25. General endocrinology (II)
- 26. Hormones, Cascade system..
- 27. Transmembrane, Helix receptors, G protein
- 28. Phosphatidy inositol cascade, Calcium.
- 29. Hormone synthesis, Degradation,
- 30. Eicosanoid
- 31. Hormone receptors

NEUROENDOCRINE. (Hypophysis / Pineal glands)

- 32. Developmental anatomy, gross anat. Of hypophyseal and pineals
- 33. **PRACTICAL**
- 34. Hypoth. Pit Axis
- 35. Neural integration of endocrine functions, Pineal gland
- 36. GH, Developmental and metabolic functions.....
- 37. Posterior Pituitary
- 38. Hypothalamic and Pituitary hormones
- 39. Pathology of Pituitary gland
- 40. Clinical aspects of the hypothalamus and pituitary glands.

Thyroid / Parathyroid

- 41. Developmental anatomy and microscopic structure of thyroid & parathyroid glands
- 42. Developmental anatomy and microscopic structure of thyroid & parathyroid glands
- 43. Thyroid Gland, Iodine economy, thyroid hormone regulation
- 44. TRH/TSH physiology, Thyroxin function
- 45. Calcium homeostasis, function, dynamics, Parathyroid gland functions
- 46. Vit D synthesis, Role in calcium homeostasis, Calcitonin
- 47. Anti thyroid drugs
- 48. Parathyroid and calcium metabolism
- 49. Pathology of the parathyroid glands
- 50. Pathology of the thyroid gland (I)
- 51. Pathology of the thyroid gland (II)
- 52. Clinical aspects of the thyroid and parathyroid

PANCREAS

- 53. Histology of endocrine pancreas
- 54. Receptors, tyrosine kinase structure, activation, defects in signaling pathway.
- 55. Glucose homeostasis, fuel flow
- 56. Role of pancreatic Hormone id fuel flow
- 57. Insulin and oral hypoglycemic drugs

58. Insulin and oral hypoglycemic drugs
59. Pathology of the endocrine Pancreas
60. Clinical aspects of the endocrine pancreas

ADRENAL

61. Developmental anatomy and histology of adrenal
62. **PRACTICAL** : adrenal and pancreas
63. Steroid hormones, structure, synthesis, control
64. Adrenal gland,
65. Adrenal gland, regulation.....
66. Corticosteroids,
67. Androgens and anti androgens
68. Pathology of the adrenal gland (I)
69. Pathology of the adrenal gland (II)
70. Clinical aspects of the adrenal glands
71. **PATH : PRACTICAL I**
72. **PATH : PRACTICAL II**

B. Practical Laboratory Sessions

1. Morphological and microscopic anatomy of endocrine glands (Anat.)
2. Pathology of Endocrine glands I (Path.)
3. Pathology of Endocrine glands II (Path.)

Recommended Text Book and Atlases:

*** Anatomy:**

- Clinical Anatomy for Medical Student By R.S Snell Latest edition
- Basic Histology by L Carlos Junqueira Latest edition
- Before we are born By K.L Moore and T.V.N Persaud Latest edition

*** Biochemistry:**

- Harper's Biochemistry By Robert K Murray and Co Latest edition
- Supplementary Departmental Handouts

*** Physiology:**

- Textbook of Medical physiology by Guyton and Hall 10th edition 2000
- Review of Medical physiology by William F Ganong 20th edition 2001

*** Pathology:**

- Essential Pathology by Emanuel Rubin 3rd edition 2001
- Basic Pathology by Kumar Cotran and Robbins Latest edition

*** Pharmacology:**

- Modern Pharmacology By Craig and Sitizel Latest edition

*** Nutrition:**

*** Clinical Aspects:**

- McLoed' Clinical Examination, Last edition, edited by John F. Munro, Ian W. Campbell. ISBN: 0443061726. CHURCH HILL LIVINGSTONE.

Optional Readings

- Physiology. By Robert M. Berne and Mathew N. Levy. Publisher Mosby. Latest edition
- Basic and Clinical Endocrinology, last edition. By Francis S. Greenspan and David G. Gardner. ISBN: 0-07-118222-5. McGraw Hill Companies.