

16 Sem III

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VERTEBRATE ENDOCRINOLOGY CC-12  
Topic - Aims and Scope of Endocrinology  
(Part-1)

Endocrinology is the study of hormones, secreted by a group of specialized tissues and organs, essential hormones are well being of body and control over different activities of body essential for survival.

Hormone is a chemical messenger that are released in one part of body and travel in the blood stream and have an effect on other part of the body. This connectivity makes an endocrine communication among various parts of the body as well as a feed back mechanism.

Aims of Endocrinology -

- ① To know about the different endocrine glands of the body and their secretions.
- ② Bio synthesis and chemical nature of the hormone.
- ③ Functions of endocrine glands and their disorders.
- ④ Different types of hormone receptors and principles of hormone action.
- ⑤ Knowledge about how hormone regulation of general metabolism, Respiration, growth, Reproduction sensory perception and movement etc.
- ⑥ Knowledge about diseases caused by malfunctioning of various endocrine glands.

Kajol



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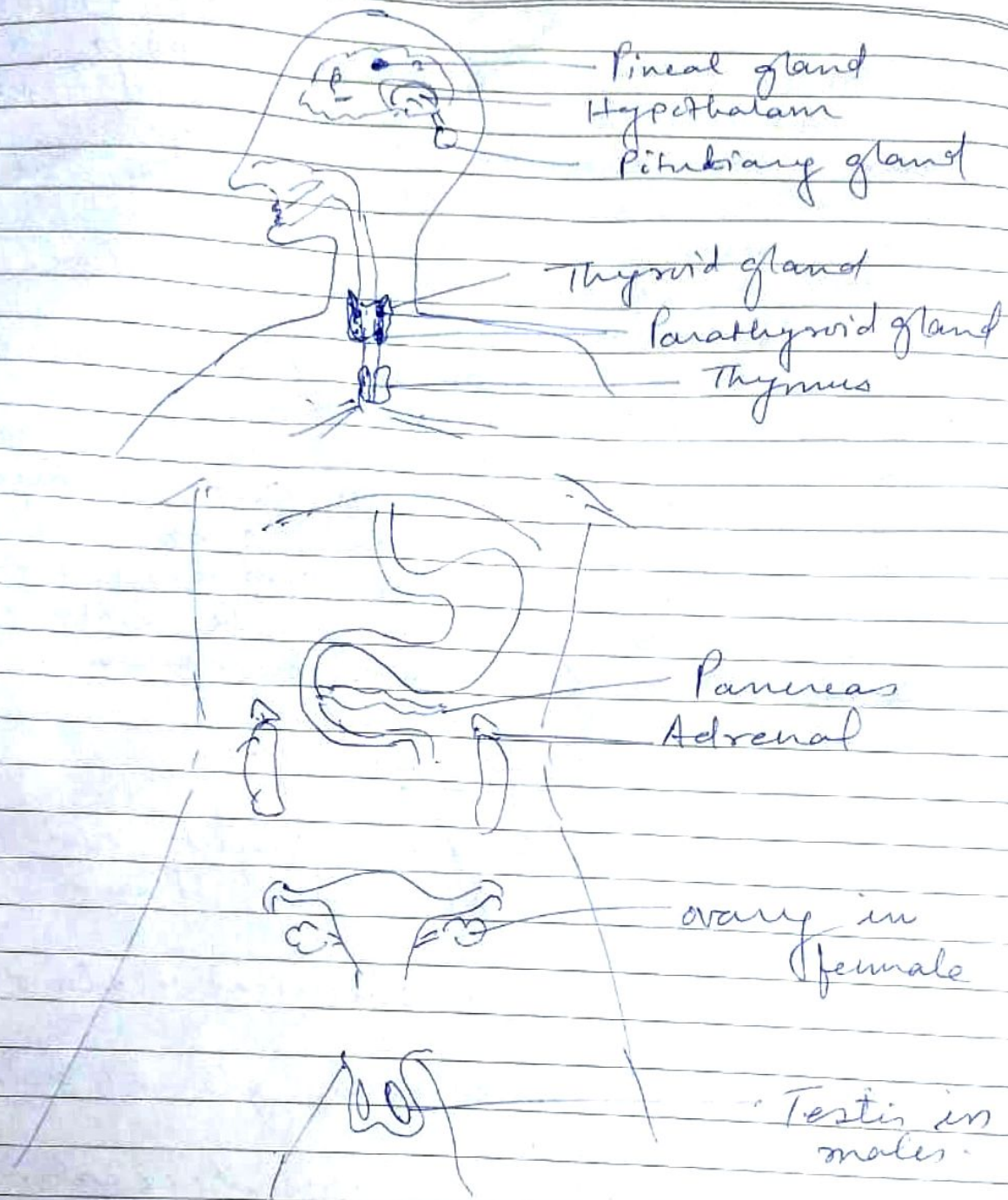


fig - Various endocrine glands in human body.

Historical events related to endocrinology -

- (1) In the year 1902 W. Bayliss and E.H. Starling discovered Secretin in 1905. E.H. Starling first <sup>used</sup> proposed the term 'hormone' proposed by W.B. Hardy.



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- (2) 1903-1906 J.S. Edkins discovered gastrin.
- (3) 1906 - H. Dale discovered the oxytocin action from pituitary extracts.
- (4) 1912 A.E. Frank showed the relationship between Pituitary and diabetes insipidus.
- (5) 1914 - Thyroxin crystals were isolated by E.C. Kendall.
- (6) 1926. J.J. Abel obtained insulin crystals.
- (7) 1935 - E. Laqueur isolated Testosterone.
- (8) 1940-49 - Choh Has Li and Evans isolated Luteinizing hormone (LH) Adrenocorticotrophic hormone (ACTH) Growth hormone (GH) and Prolactin Follicle Stimulating hormone (FSH) from anterior pituitary or Adenohypophysis.
- (9) 1951 W. Baymann and E. Scharres isolated oxytocin and Vasopressin from posterior part of Pituitary or Neurohypophysis.
- (10) 1956 I.M. Roitt and D. Doniach found autoantibodies in Hashimoto's thyroiditis.
- (11) Choh Has Li and ~~and~~ co-workers synthesized and depicted the structure of Growth hormone. (1971)
- (12) 1971 J.G. Pierce and colleagues elucidated the structure of Thyroid Stimulating hormone secreted by ant. Pituitary.

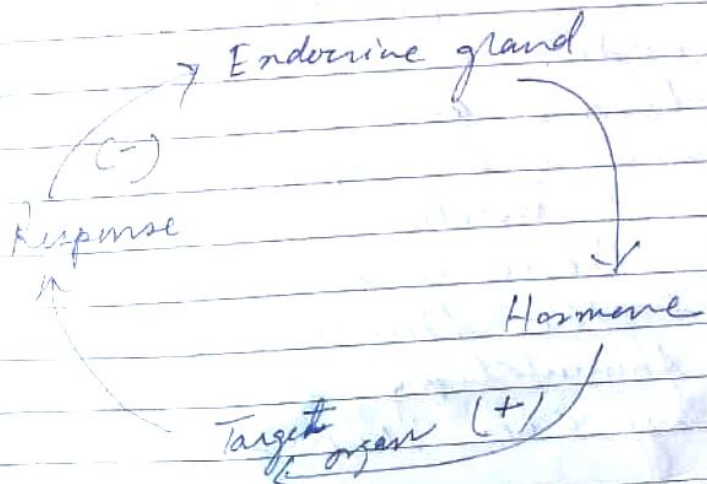
Scopes of endocrinology - The scope of

- (1) endocrinology is to study and understand the pathophysiology, diagnosis and treatment of endocrine disorders and the following -



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- ① Endocrine physiology and metabolism (including hormone secretion, hormone actions, biological effects etc)
- ② Behavioural endocrinology
- ③ Neuroendocrinology
- ④ Reproductive endocrinology, Gynaecological, fetal endocrinology.
- ⑤ Calcium homeostasis, hormonal imbalance, menopause, obesity, cellular and comparative endocrinology
- ⑥ To study the regulation of energy balance, preserving, accessing and interconverting metabolic fuels to meet cellular energy demands.
- ⑦ Coordination of processes for coping with a hostile environment and hormonal mechanisms to adjust with changing environmental conditions.
- ⑧ Coordination of growth and development.
- ⑨ Co-ordination of processes associated with reproduction and lactation.



Simple feedback mechanism by  
Dr. Bibha Verma