

Personal data I can
use for a lifetime!!

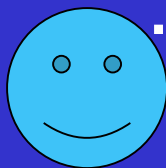


Heck yeah!

BI 121 Lecture 11

- I. *Announcements*** Blood Chem Lab today! Fun day!
Personal data!!! If you haven't already done so, please review Lab 5 in LM, in e-mail. Thanks sincerely!
Lab Manual & Exam I Remaining Returns. Q from last t?
- II. *Physiology in Hollywood News?*** Type I vs Type II diabetes
- III. *Safety & Techniques Review for Blood Chem Lab*** Q?
- IV. *Endocrine Connections*** LS ch 17, DC Module 13, SI Fox +...
 - A. What's an endocrine? + classes** ~ LS pp 495 - 6
 - B. Hypothalamus (Master) – Pituitary (Slave!)**
DC pp 104-6 + LS pp 499-506
 - C. Posterior pituitary storage site** DC p 108, LS fig 17-4 p 502
 - D. Anterior pituitary hormones** DC pp 105-7, LS pp 502-6
 - E. Endocrine feedback + reflexes** LS p 540 fig 17-7
 - F. GH: Body builder's dream? Fountain of youth?**
LS pp 506-10, fig 17-10, 17-11
 - G. Peripheral endocrine organs** DC pp 109-13, LS pp 513-36
 - 1. Pancreas**
 - 2. Thyroid**
 - 3. Adrenals**

No food, drink or gum in lab today! Thanks sincerely!



...Healthy, tasty & fresh, but not in lab!!

PREPARATION



1

WASH & DRY



2

ALCOHOL



3

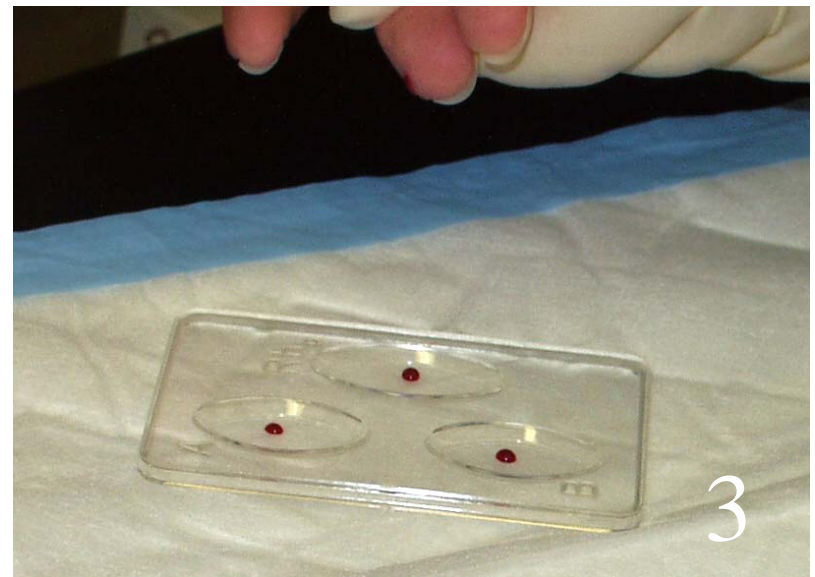
SAMPLE+TESTS



OBTAIN μ SAMPLE



BLOOD GLUCOSE



BLOOD TYPING

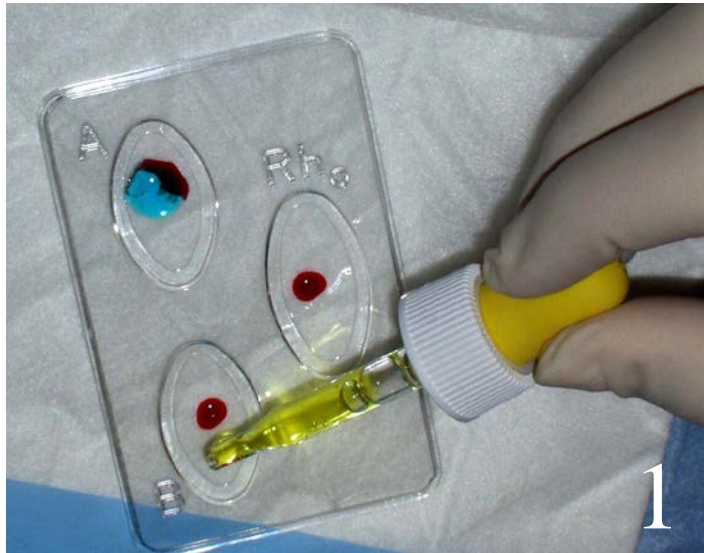
Glucose:
Sugar in blood



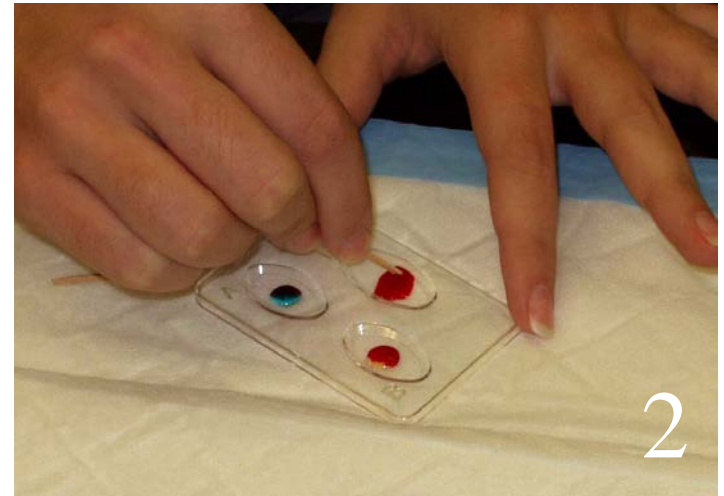
Record in
Notebook
w/dominant
hand!

Normal: 70-99
Pre-Diabetes: 100-125
Diabetes: \geq 126 mg/dL

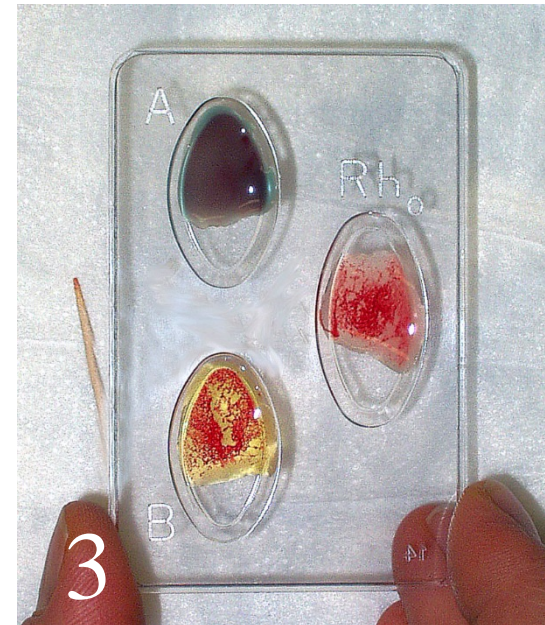
BLOOD TYPING



ADD ANTISERA



MIX W/TOOTHPICKS



READ & RECORD!!

CLEAN-UP!



FOLD DIAPER



BLOOD PRODUCTS



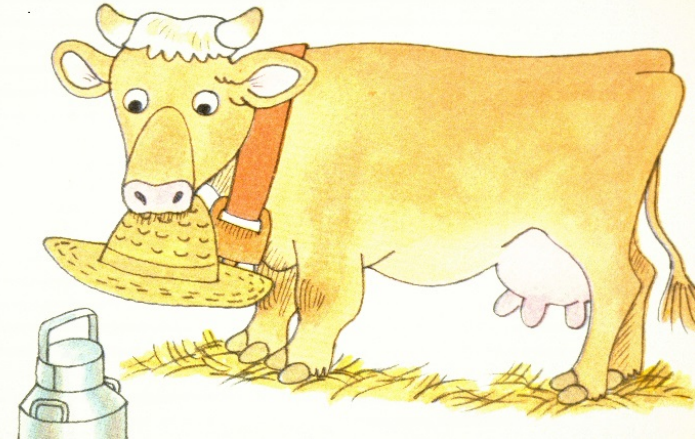
REWASH!!

Blood Chem Lab Q?

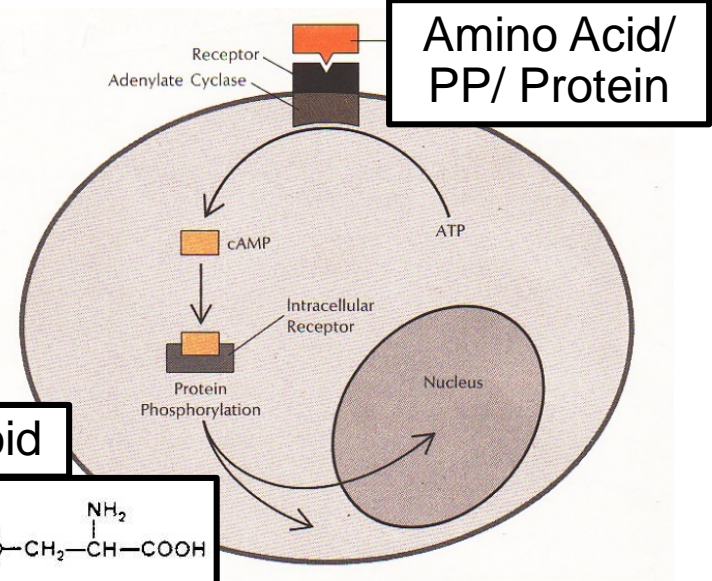


Hormone/Endocrine Classifications?

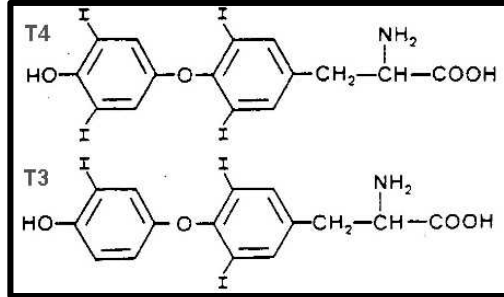
Exogenous



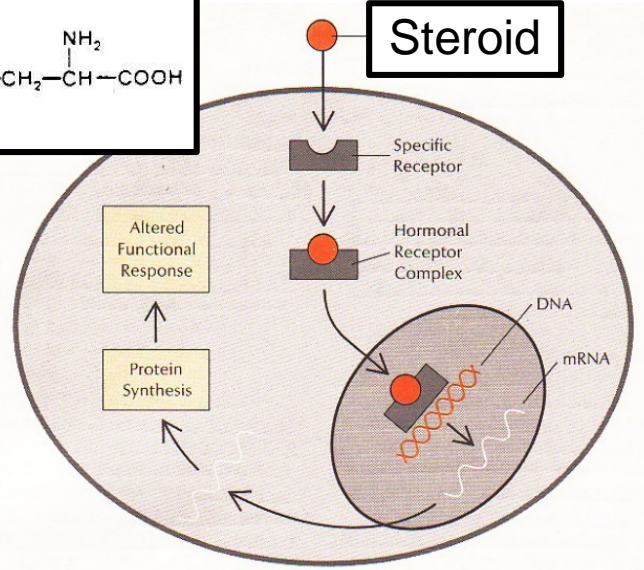
Endogenous



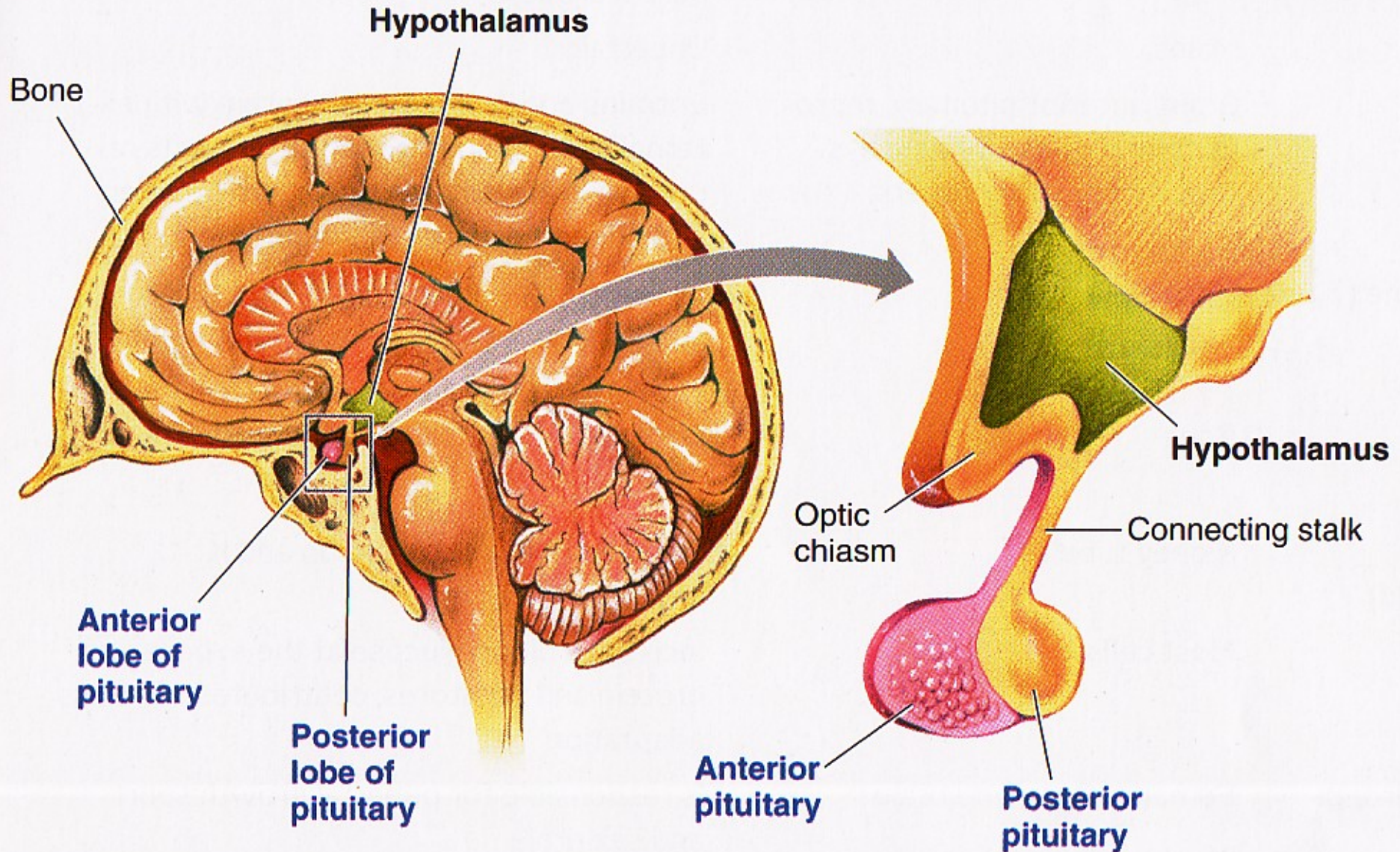
Thyroid



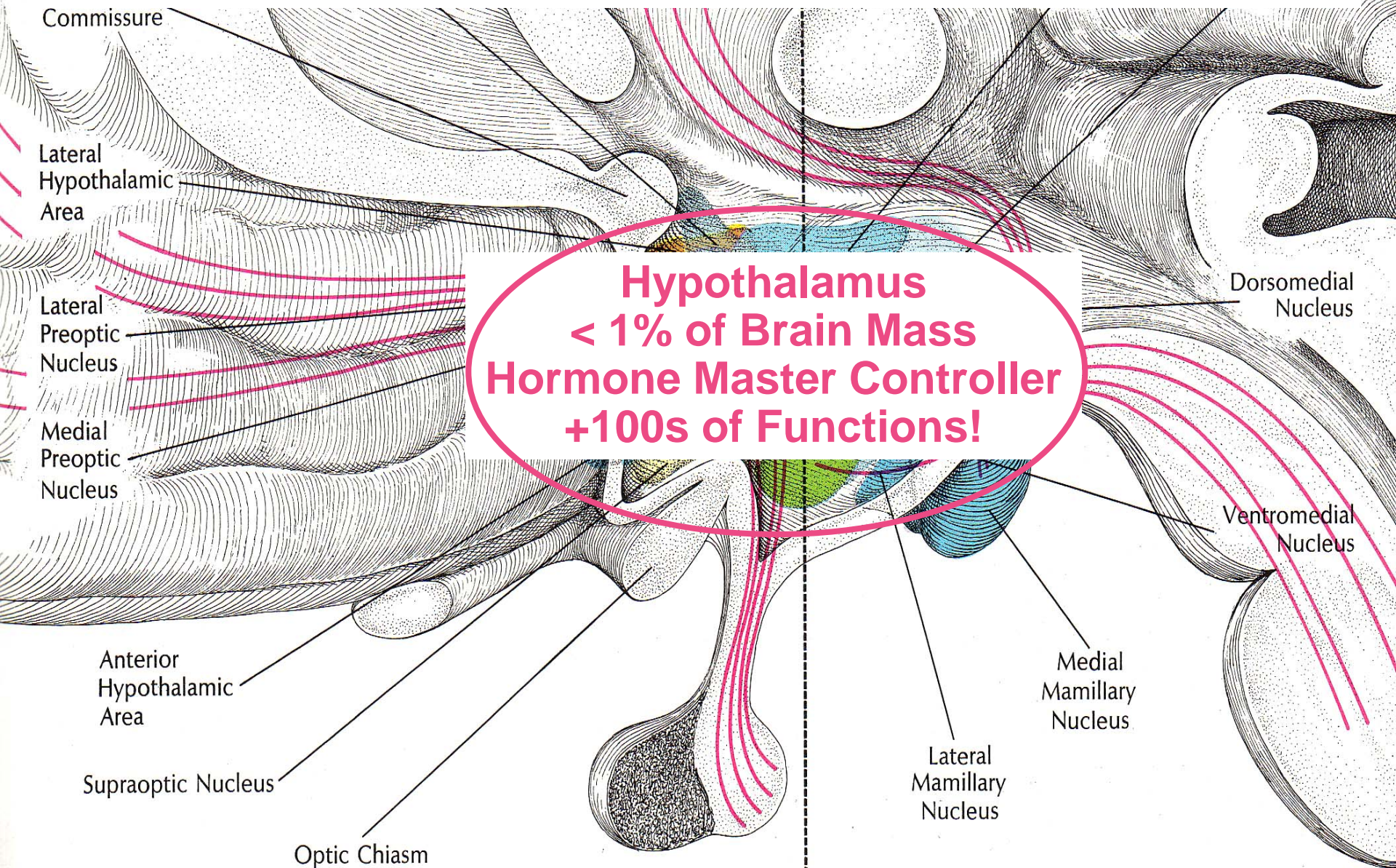
Steroid



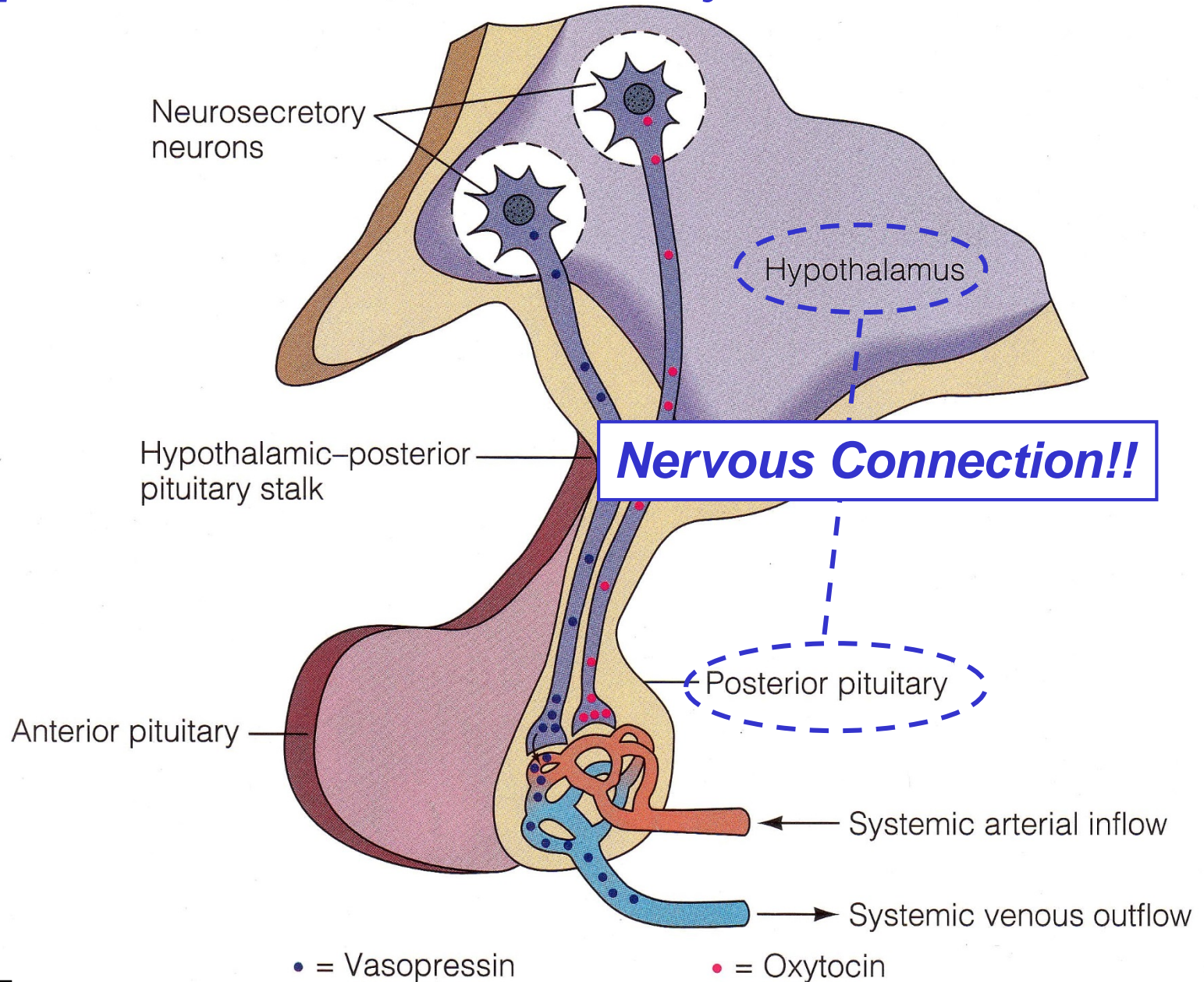
Hypothalamus & Pituitary: Intimate Relationship



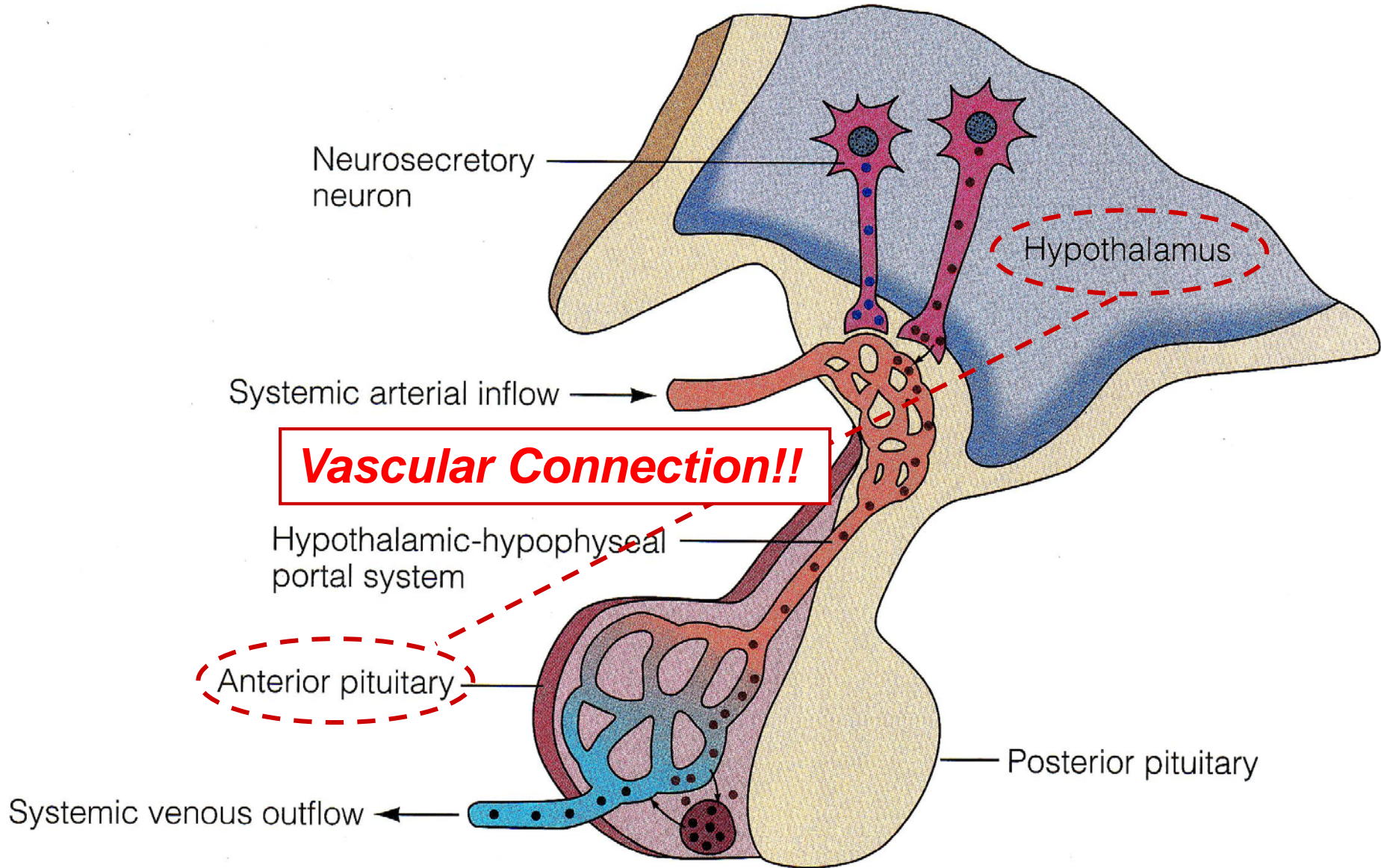
Good Things Come in Small Packages!



Hypothalamus-Posterior Pituitary Nervous Connection!



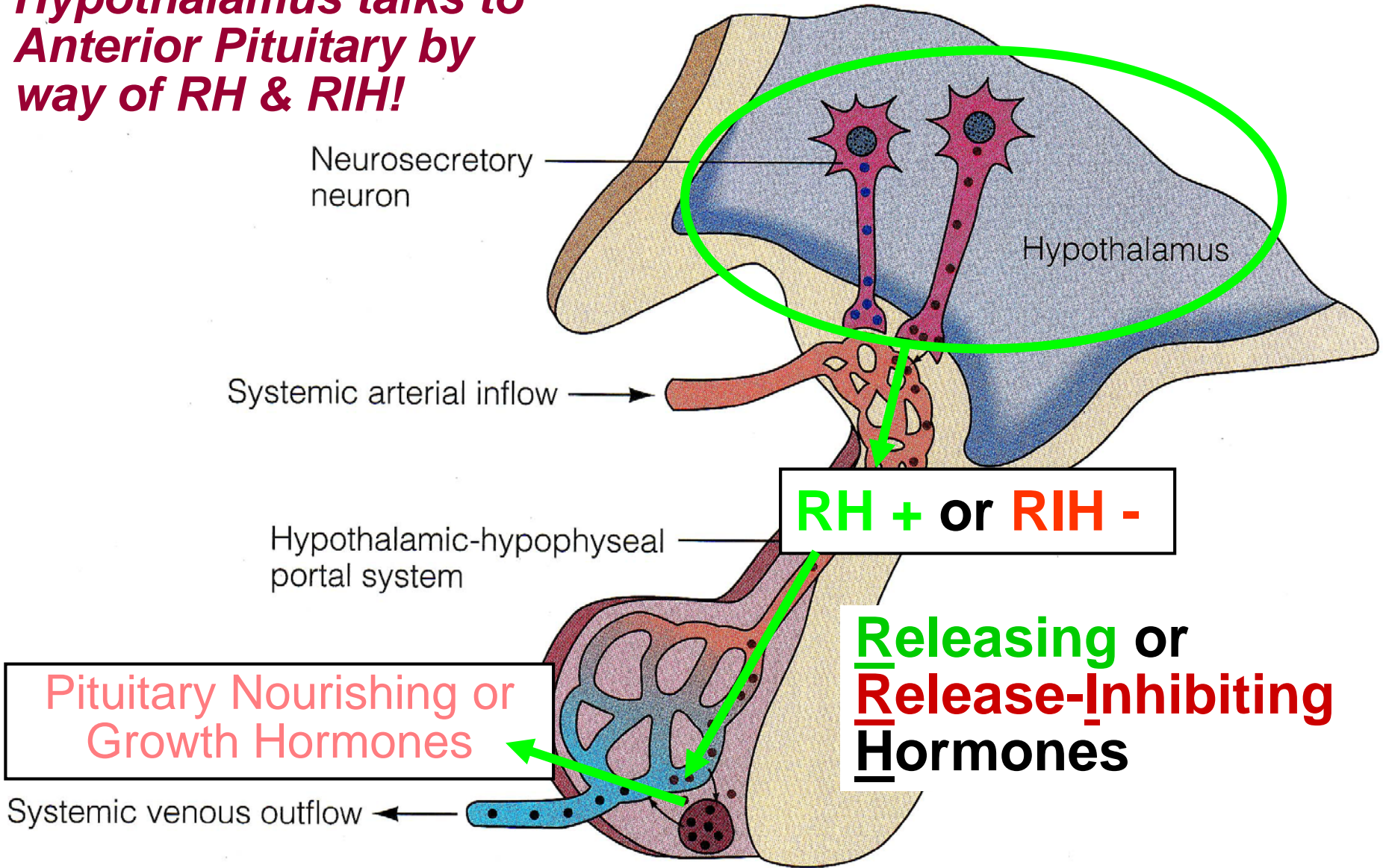
Hypothalamus-Anterior Pituitary Vascular Connection!



• = Hypophysiotropic hormones

• = Anterior pituitary hormone

Hypothalamus talks to Anterior Pituitary by way of RH & RIH!

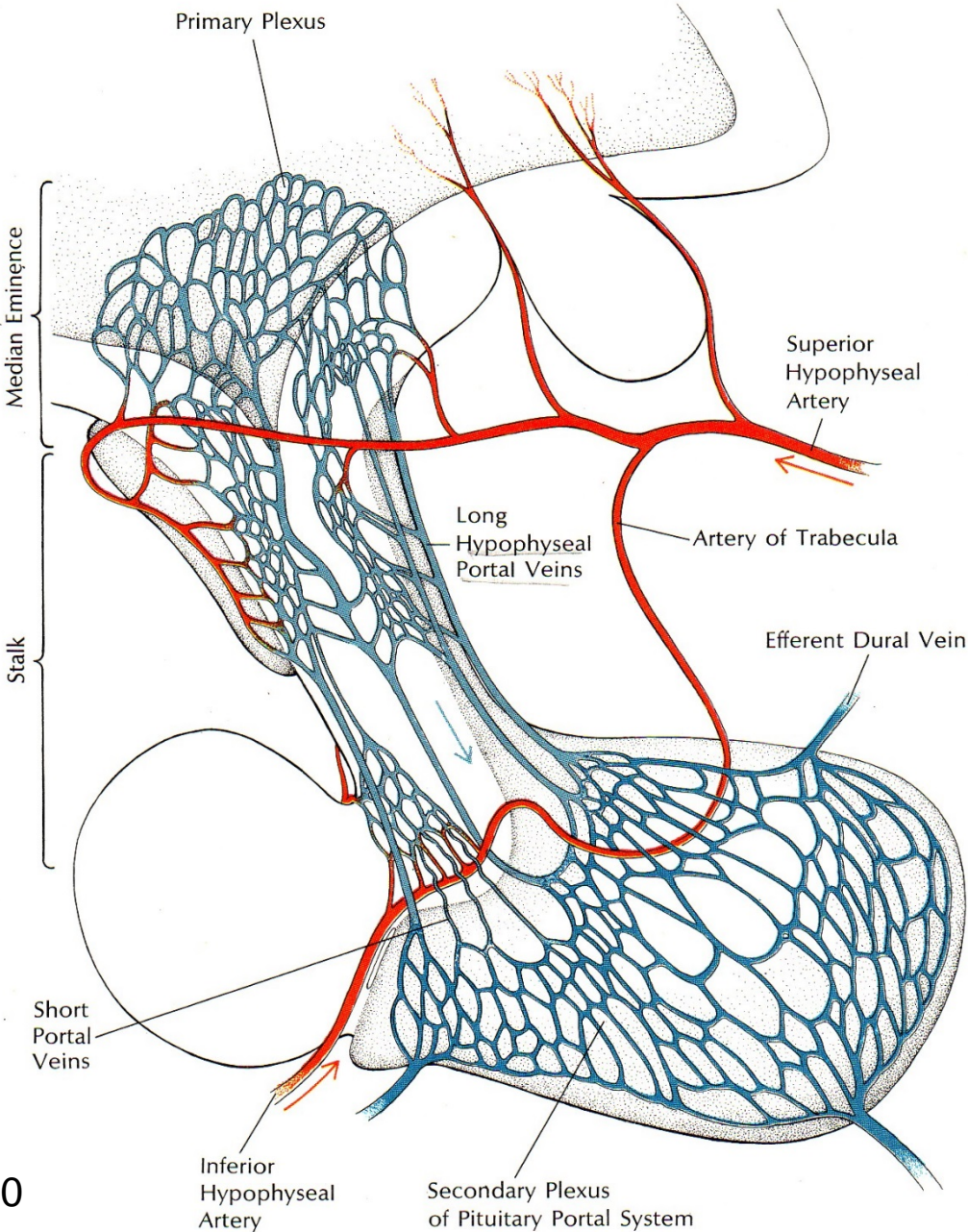


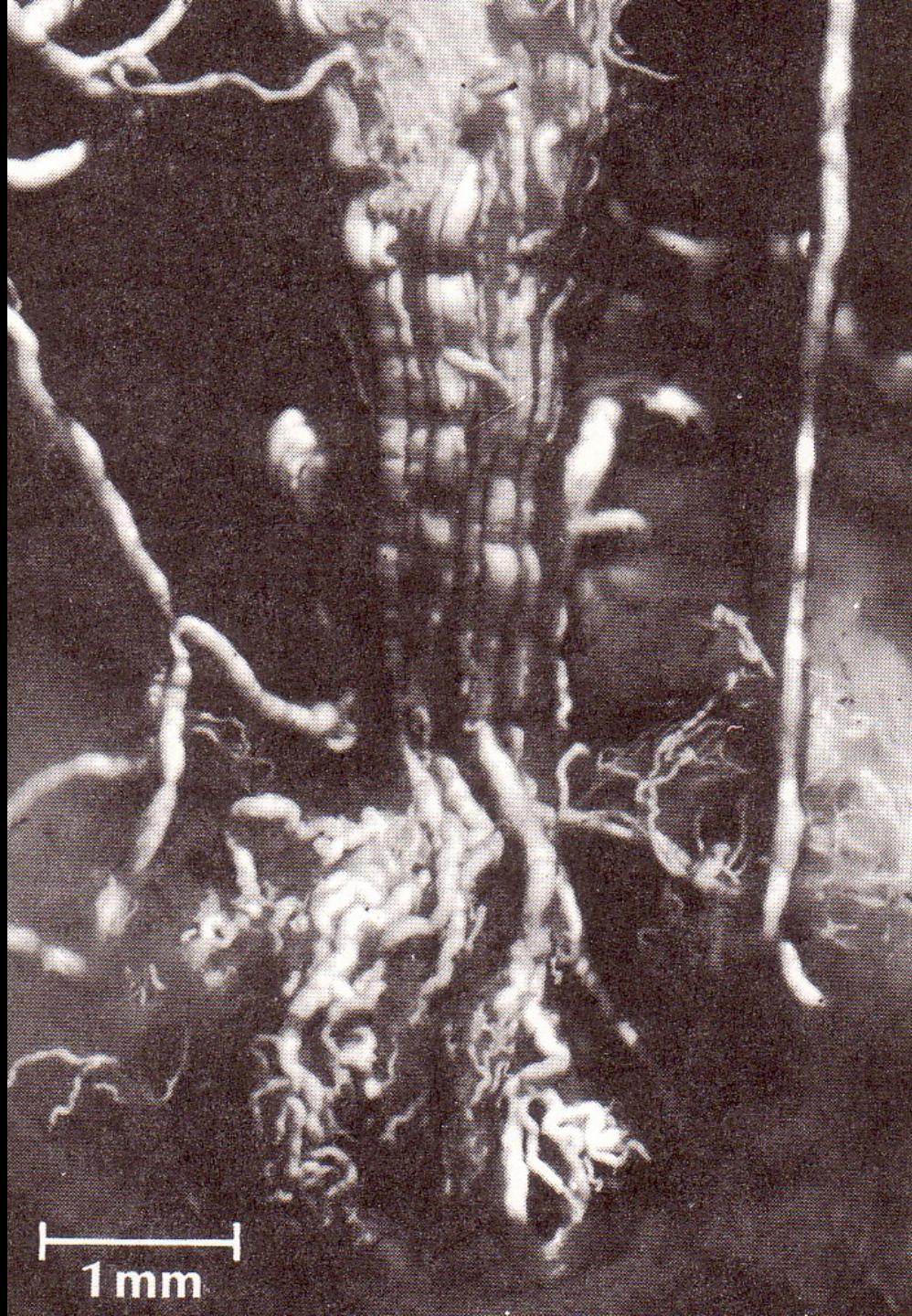
• • = Hypophysiotropic hormones

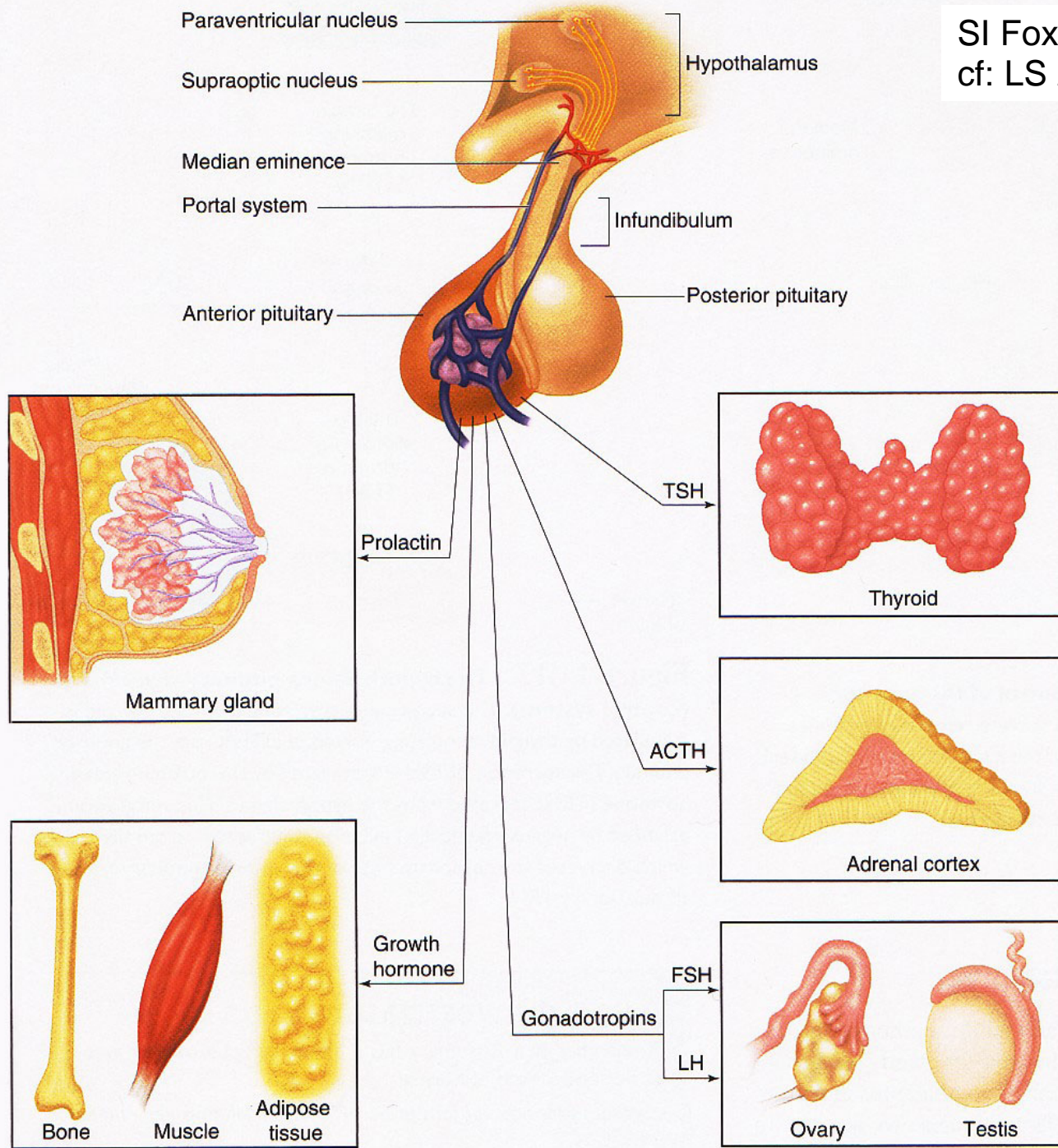
• = Anterior pituitary hormone

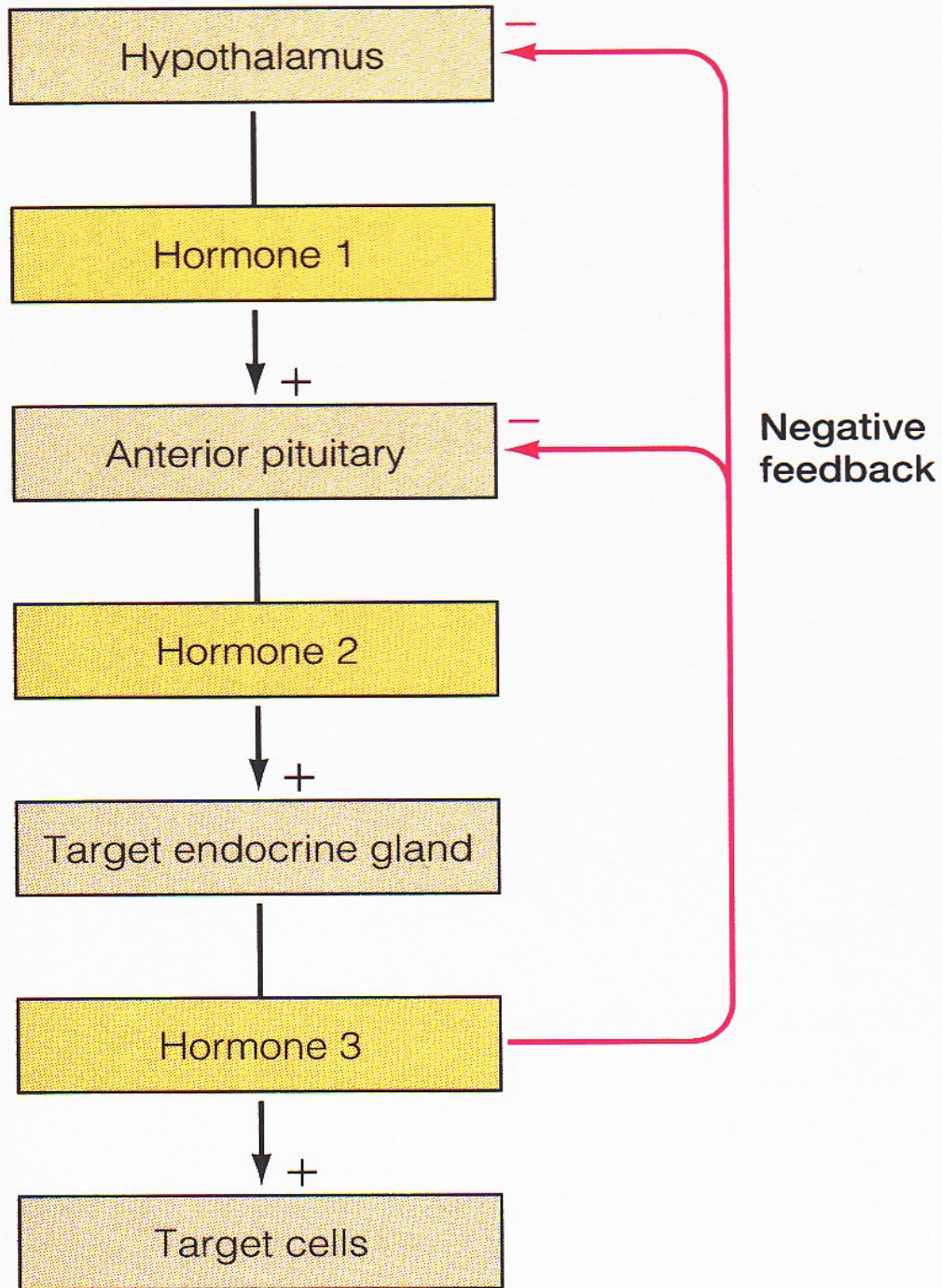
Hypophysis ≡ Pituitary

Capillary-Venule-Capillary Intimate Circulation











LS 2006, cf: LS 2012
fig 17-10

Progression & Development of Acromegaly

Age 13

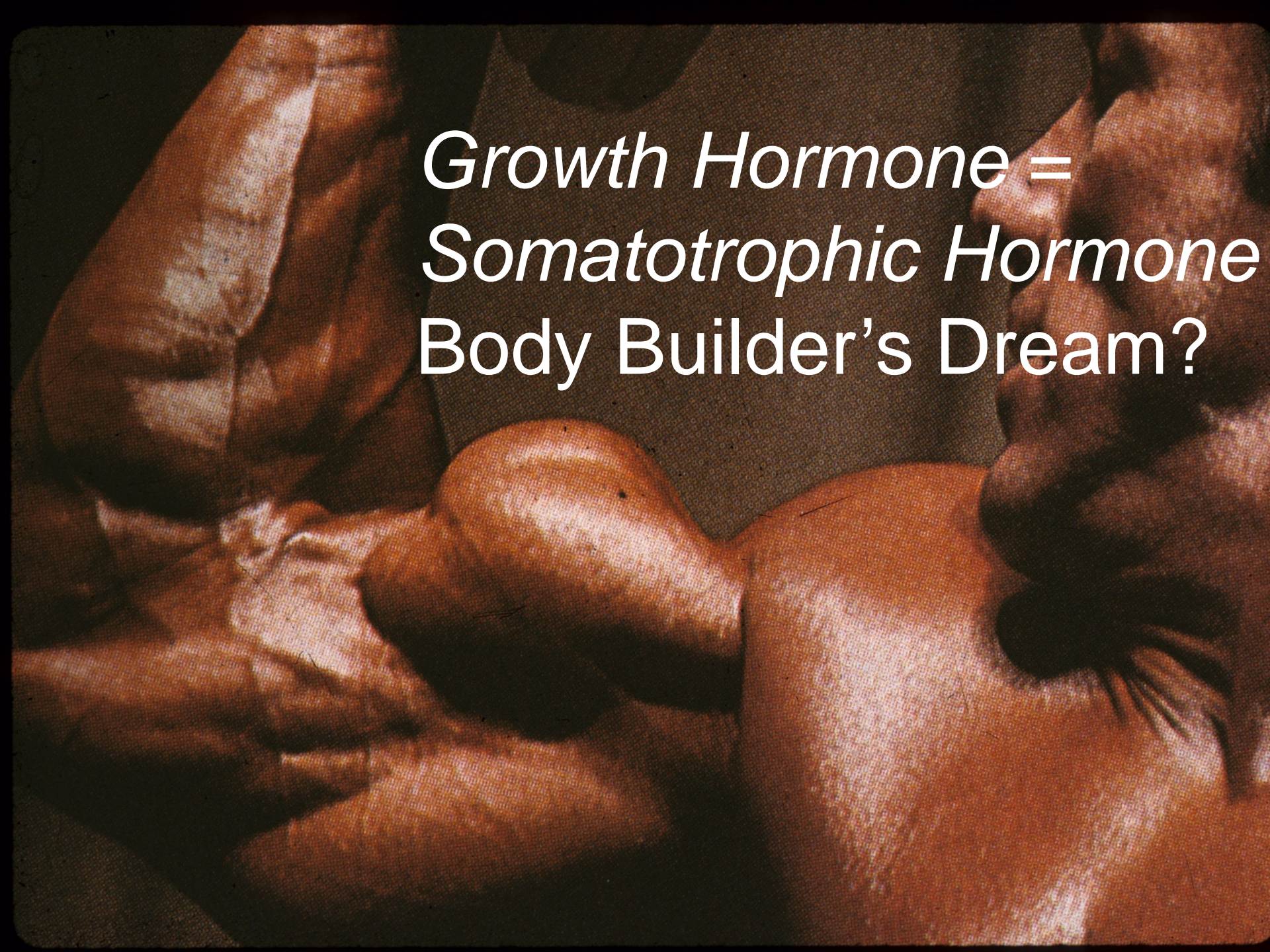


Age 21



Age 35





*Growth Hormone =
Somatotrophic Hormone
Body Builder's Dream?*

GH/STH Effects: Insulin Resistance/Type II Diabetes?

↑ Amino Acid uptake & Protein synthesis

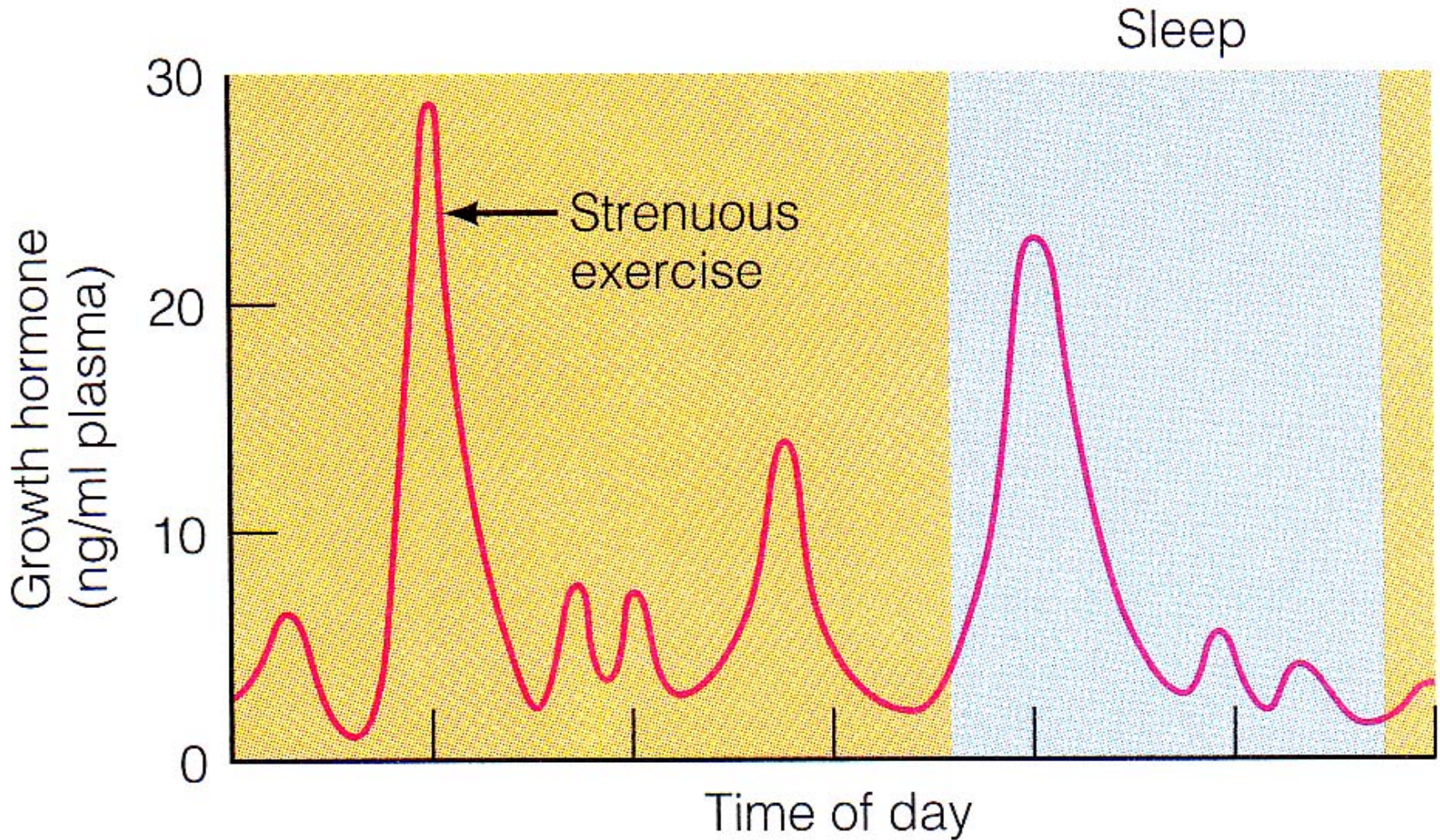
↑ Lipolysis & Fatty Acid mobilization

↓ Glucose uptake
(skeletal muscle & adipocytes)

↑ Glucose production
(liver glycogenolysis)

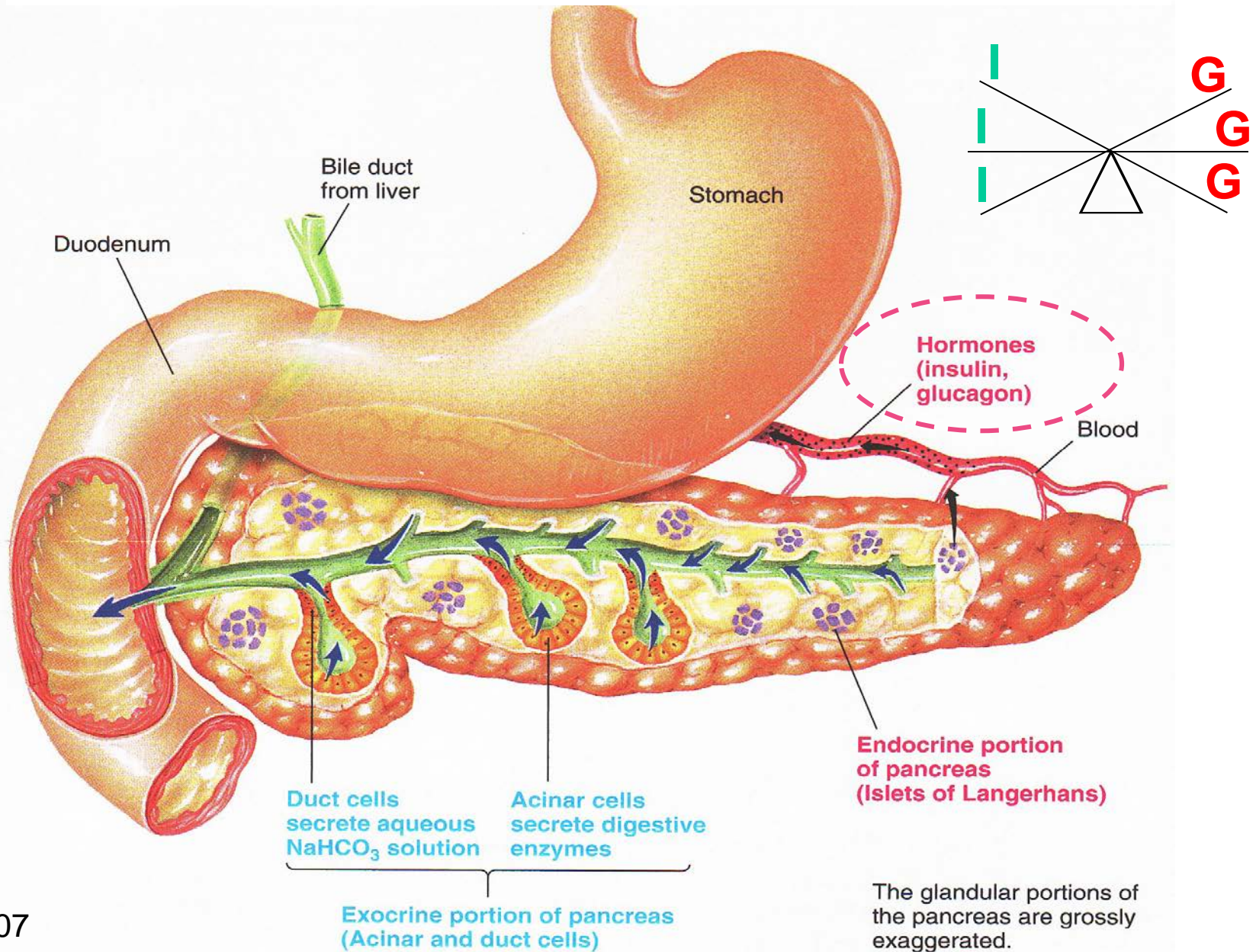
↑ Insulin secretion

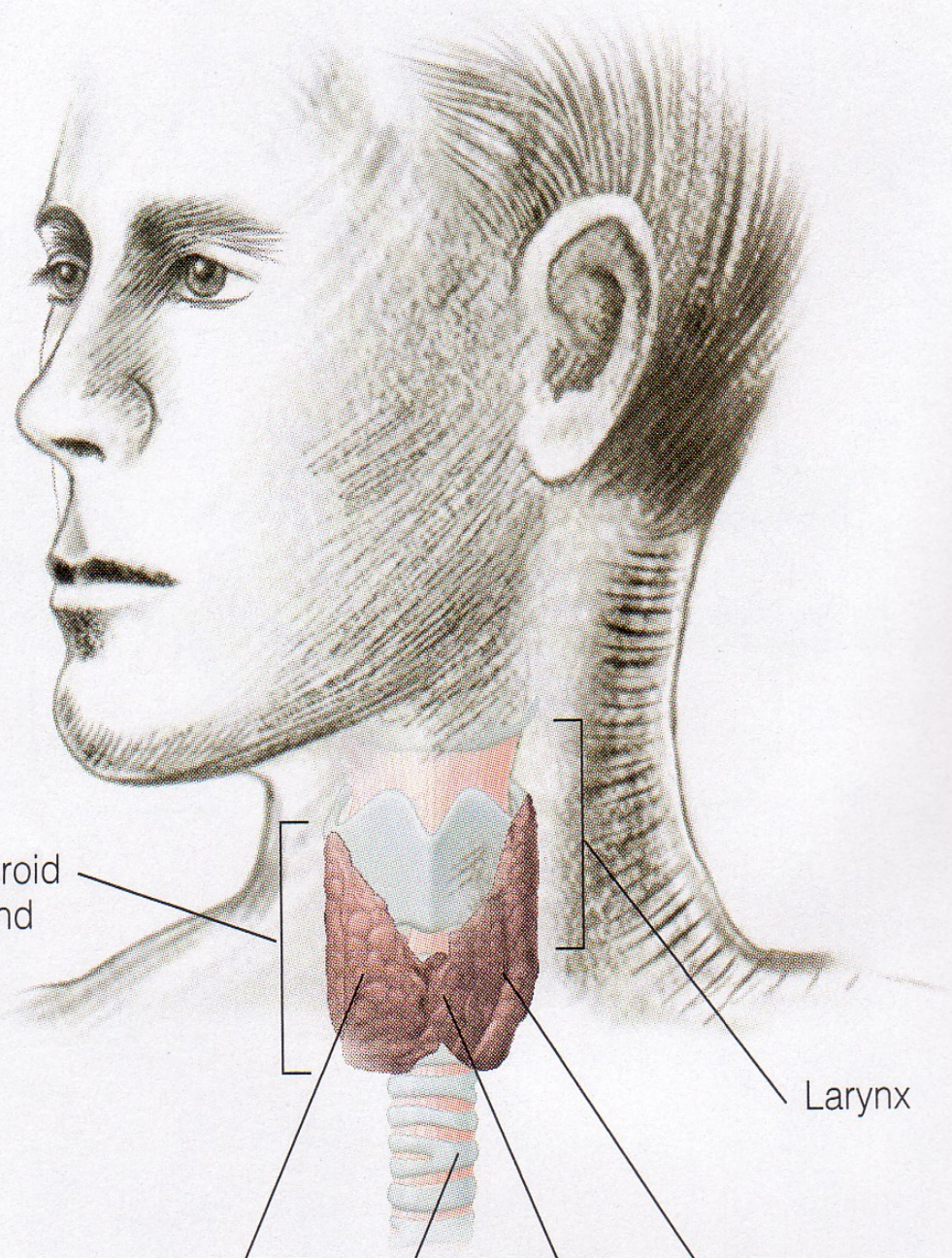
Increase GH naturally with exercise & sleep!!



ng/ml = nanograms per milliliter

Endocrine Pancreas: Insulin (I) & Glucagon (G) See-Saw Hormones in Regulating Blood Glucose





Thyroid gland

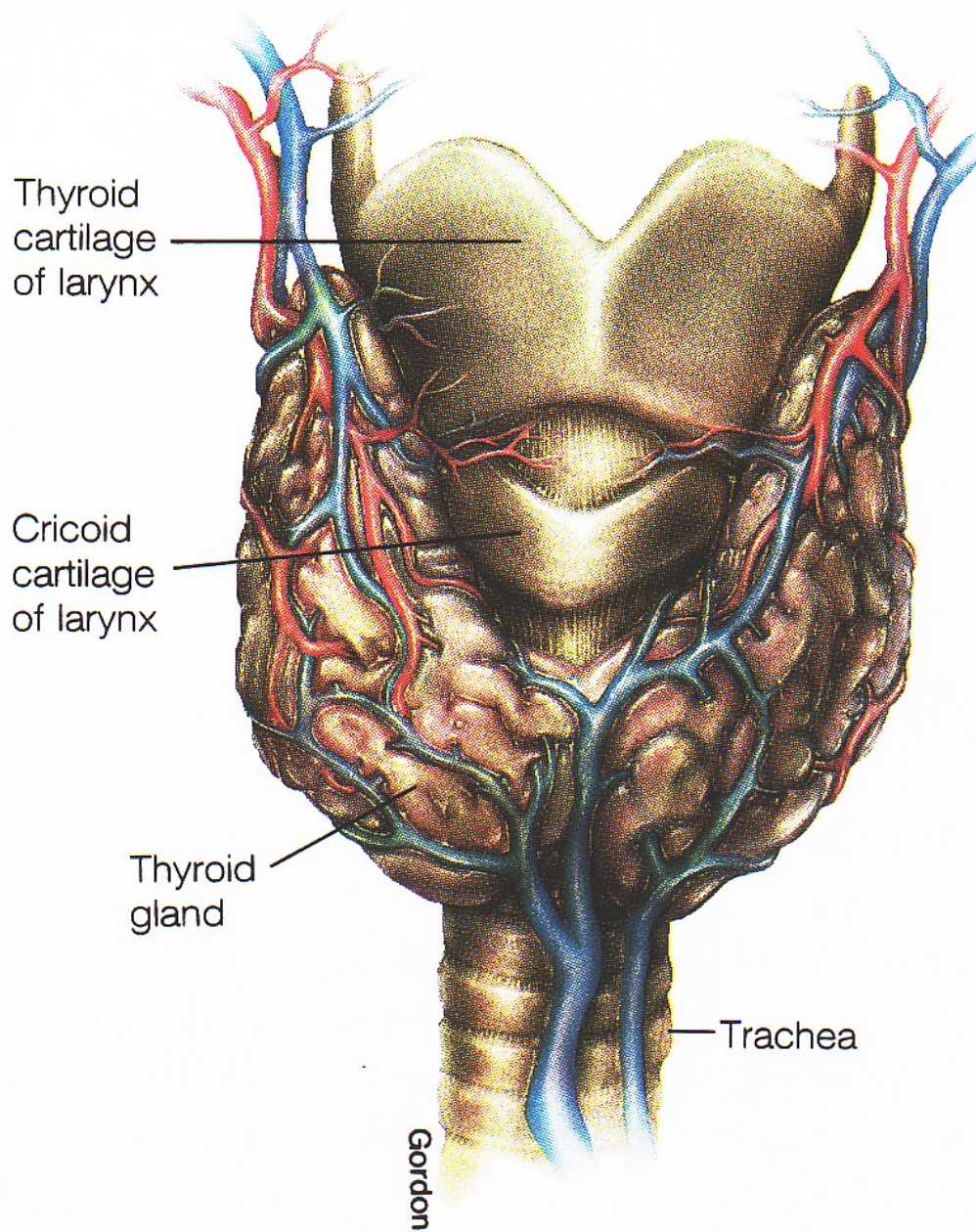
Larynx

Right lobe

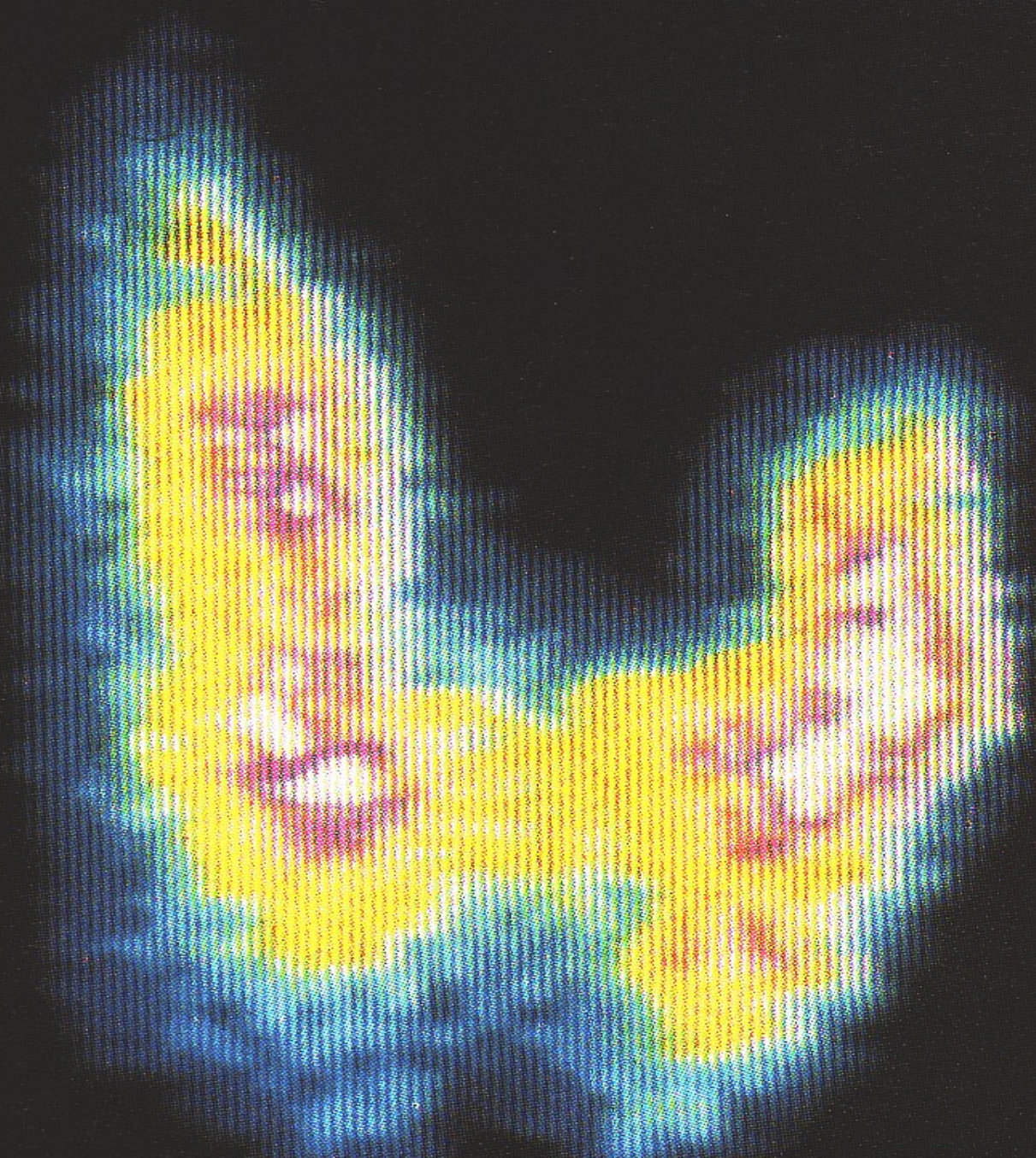
Trachea

Isthmus

Left lobe



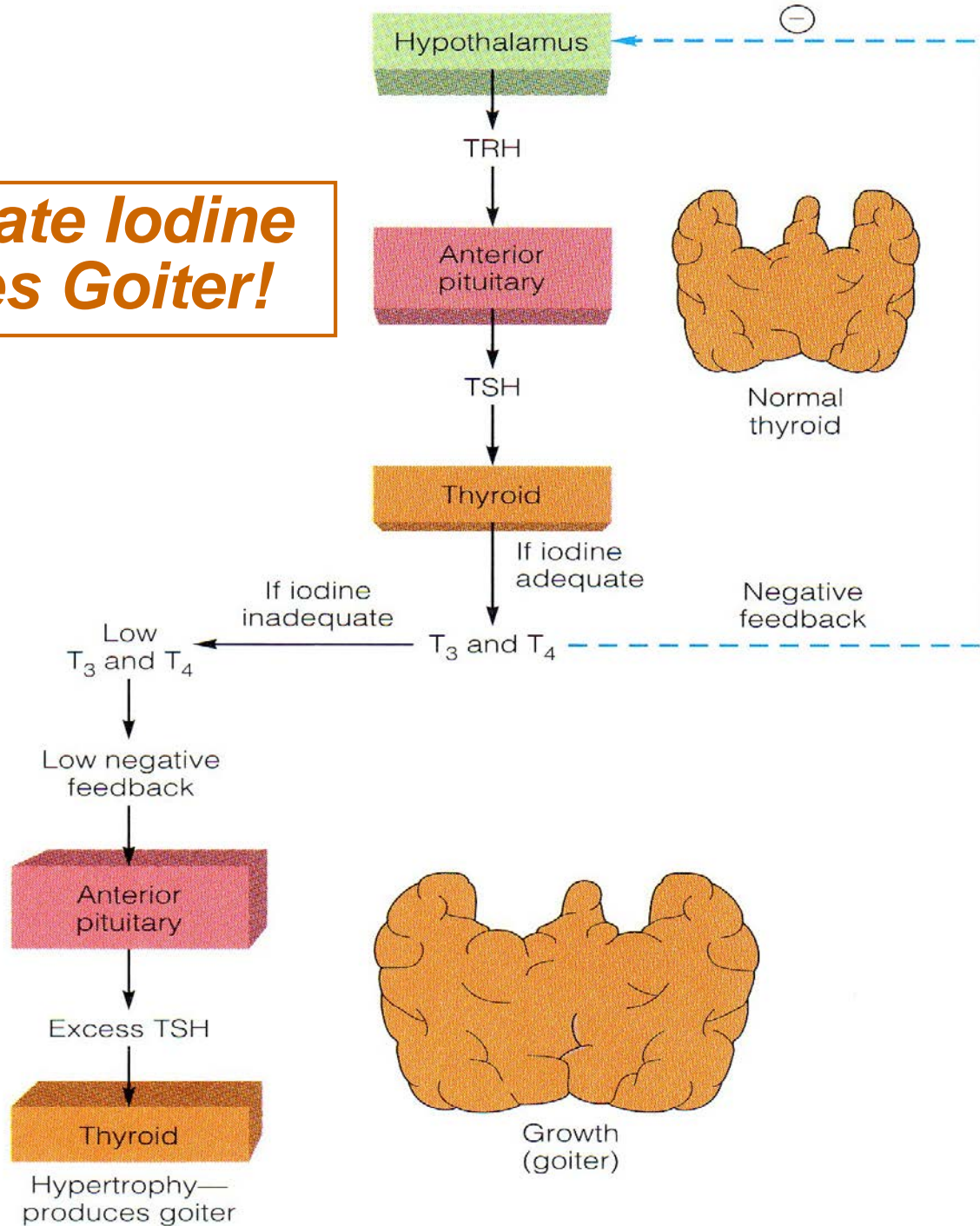
(a)







Inadequate Iodine Promotes Goiter!





Adrenal gland

Adrenal cortex

Adrenal medulla

Kidney

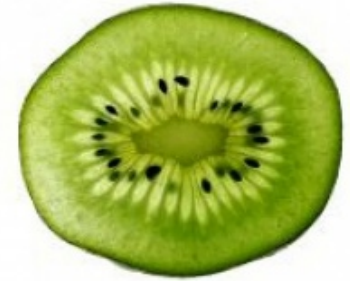
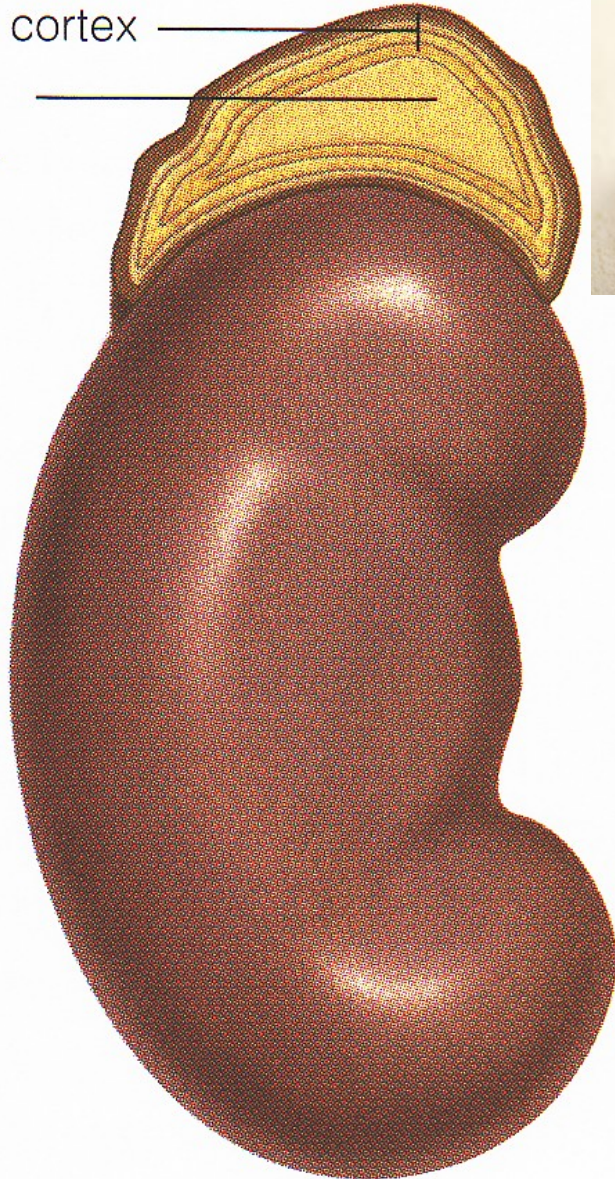
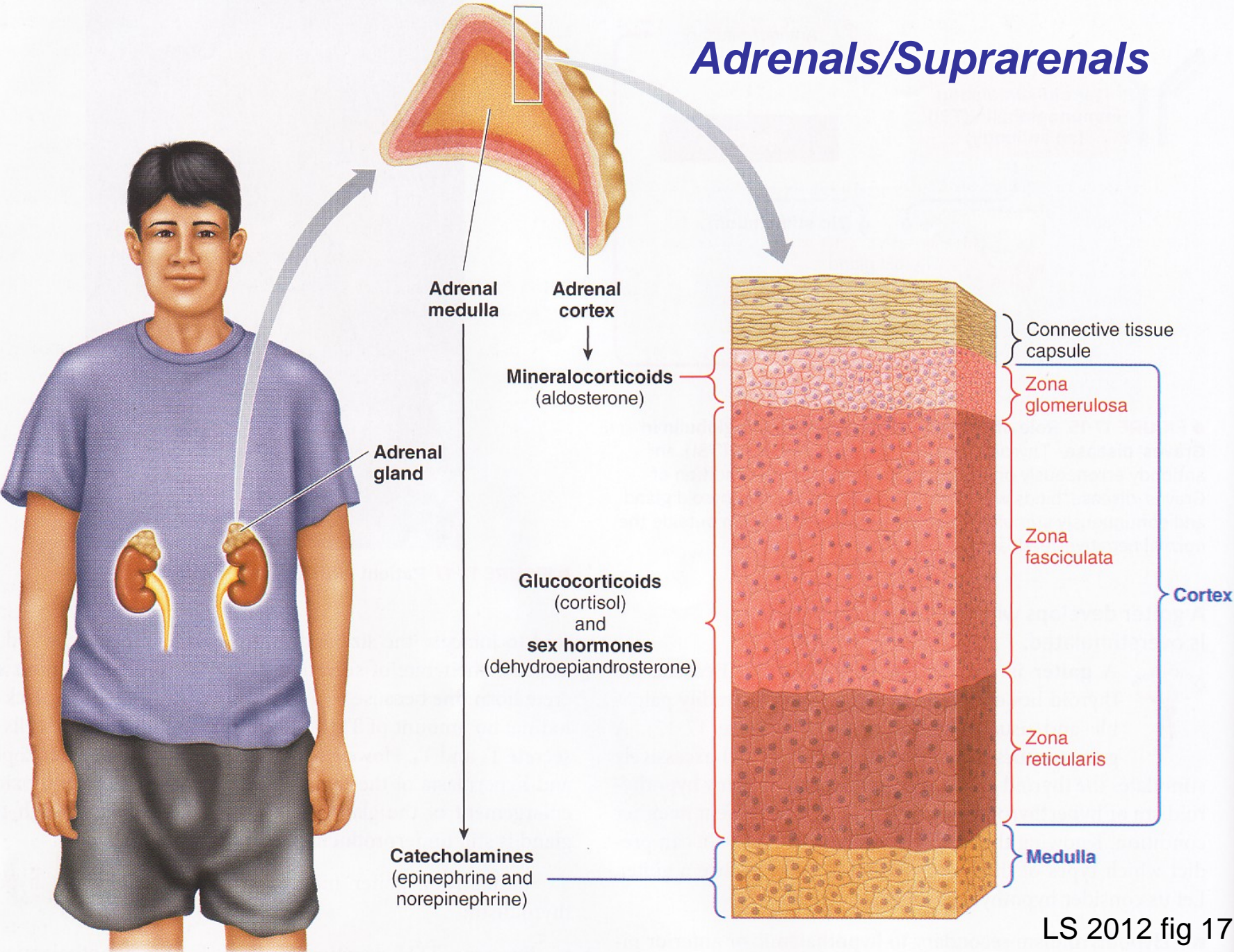


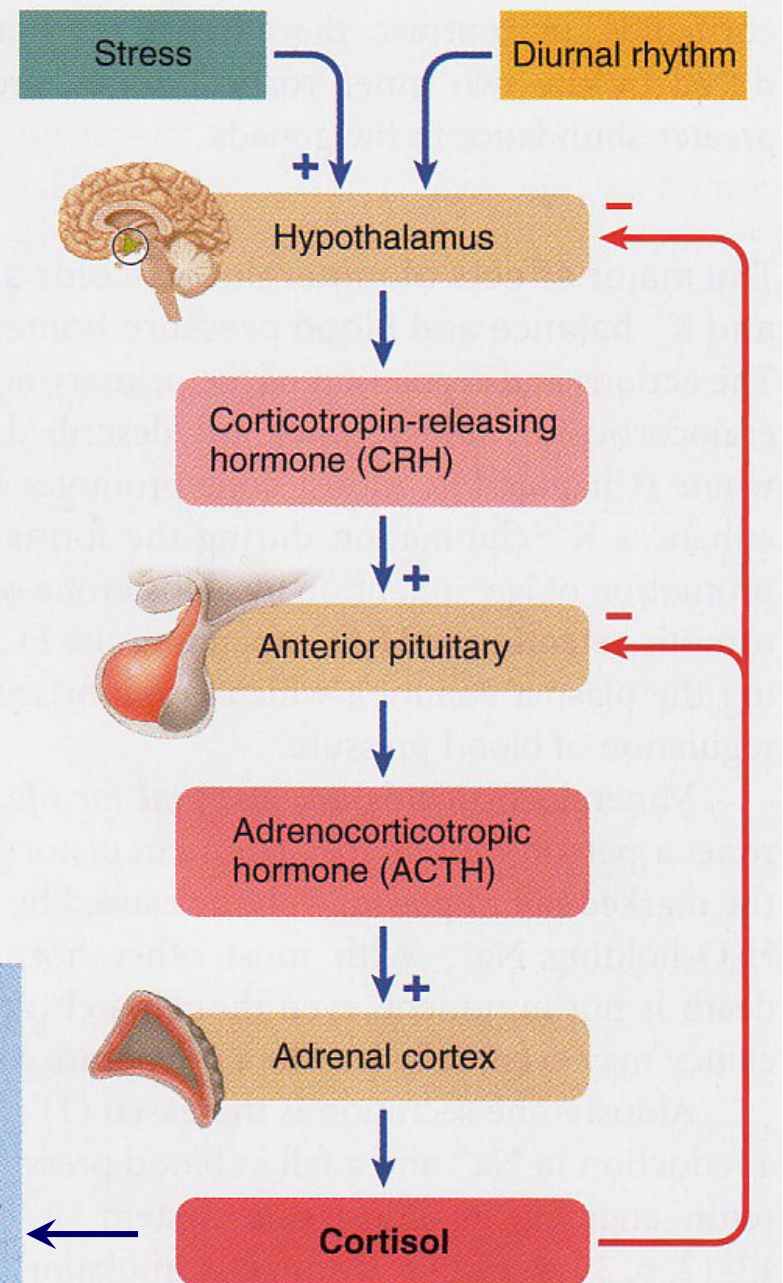
FIGURE 13-12

Adrenal Gland The adrenal glands sit atop the kidney and consist of an outer zone of cells, the adrenal cortex, which produces a variety of steroid hormones, and an inner zone, the adrenal medulla. The adrenal medulla produces adrenalin and noradrenalin.

Adrenals/Suprarenals



Stress Promotes Cortisol Secretion



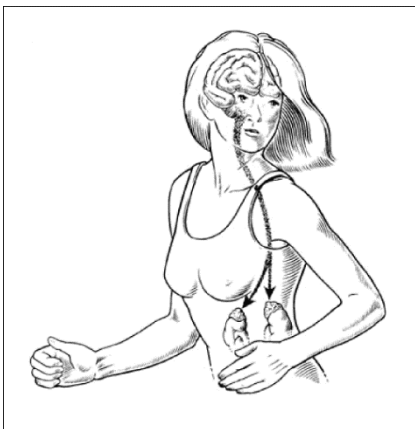
Metabolic fuels and building blocks available to help resist stress

- ↑ Blood glucose (by stimulating gluconeogenesis and inhibiting glucose uptake)
- ↑ Blood amino acids (by stimulating protein degradation)
- ↑ Blood fatty acids (by stimulating lipolysis)

BI 121!!



**Epinephrine
80%
Norepinephrine
20%**



Guyton & Hall 2000

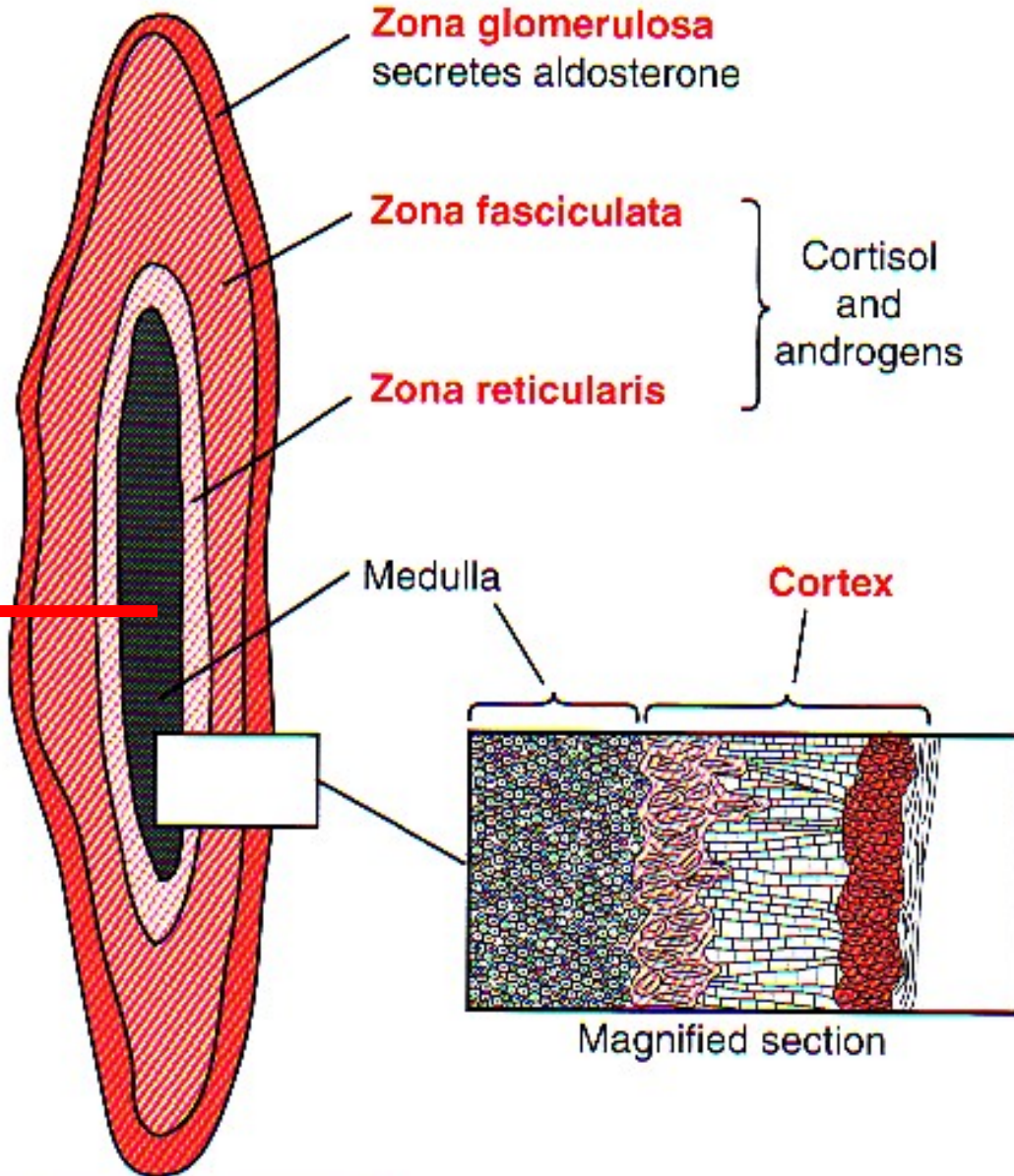


FIGURE 77 - 1

Secretion of adrenocortical hormones by the different zones of the adrenal cortex.