

# Hormônio do Crescimento (GH)

# HIPOTÁLAMO

GnRH

GHRH

SS

TRH

PIH

PRH

CRH

FSH  
LH

GH

TSH

Prl

ACTH

## ADENOHIPOFISE

### 1 Gonada 2

|                                  |                                |
|----------------------------------|--------------------------------|
| Stimulates germ cell development | Secretes hormones              |
|                                  | Female: Estrogen, progesterone |
|                                  | Male: Testosterone             |

### Liver and other cells

Secretes IGF-I

### Many organs and tissues

Stimulates growth and influences organic metabolism

### Thyroid

Secretes thyroxine, triiodothyronine

### Breasts

Stimulates breast development and milk production (in male facilitates reproductive function)

### Adrenal cortex

Secretes cortisol

# HISTÓRICO

---

1. autópsia & distúrbios do crescimento
2. estudos em animais de experimentação

- remoção cirúrgica (hipofisectomia)

**PUBERDADE**

Antes → nanismo

Após → alterações metabólicas

- extratos de hipófise

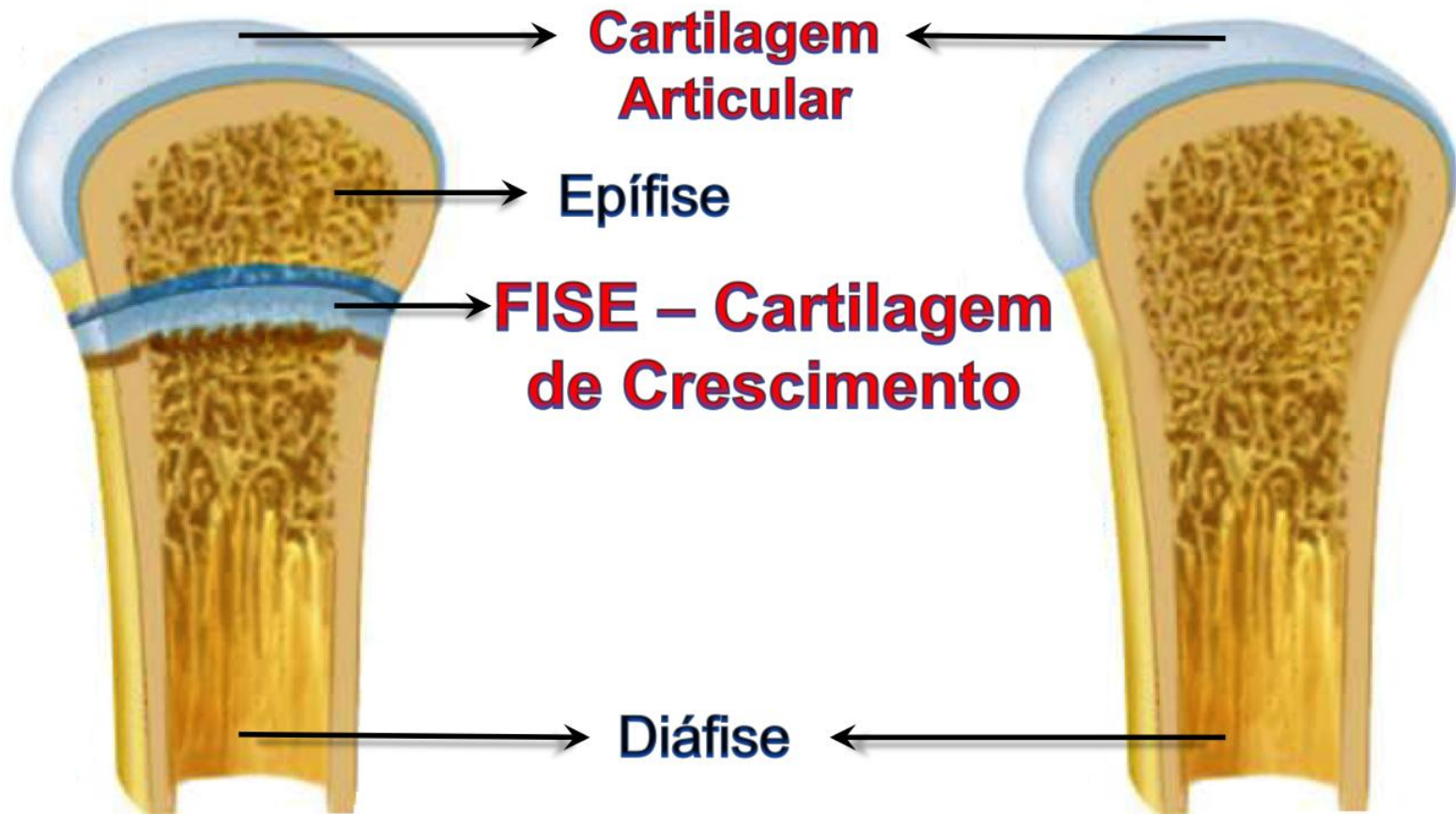
**PUBERDADE**

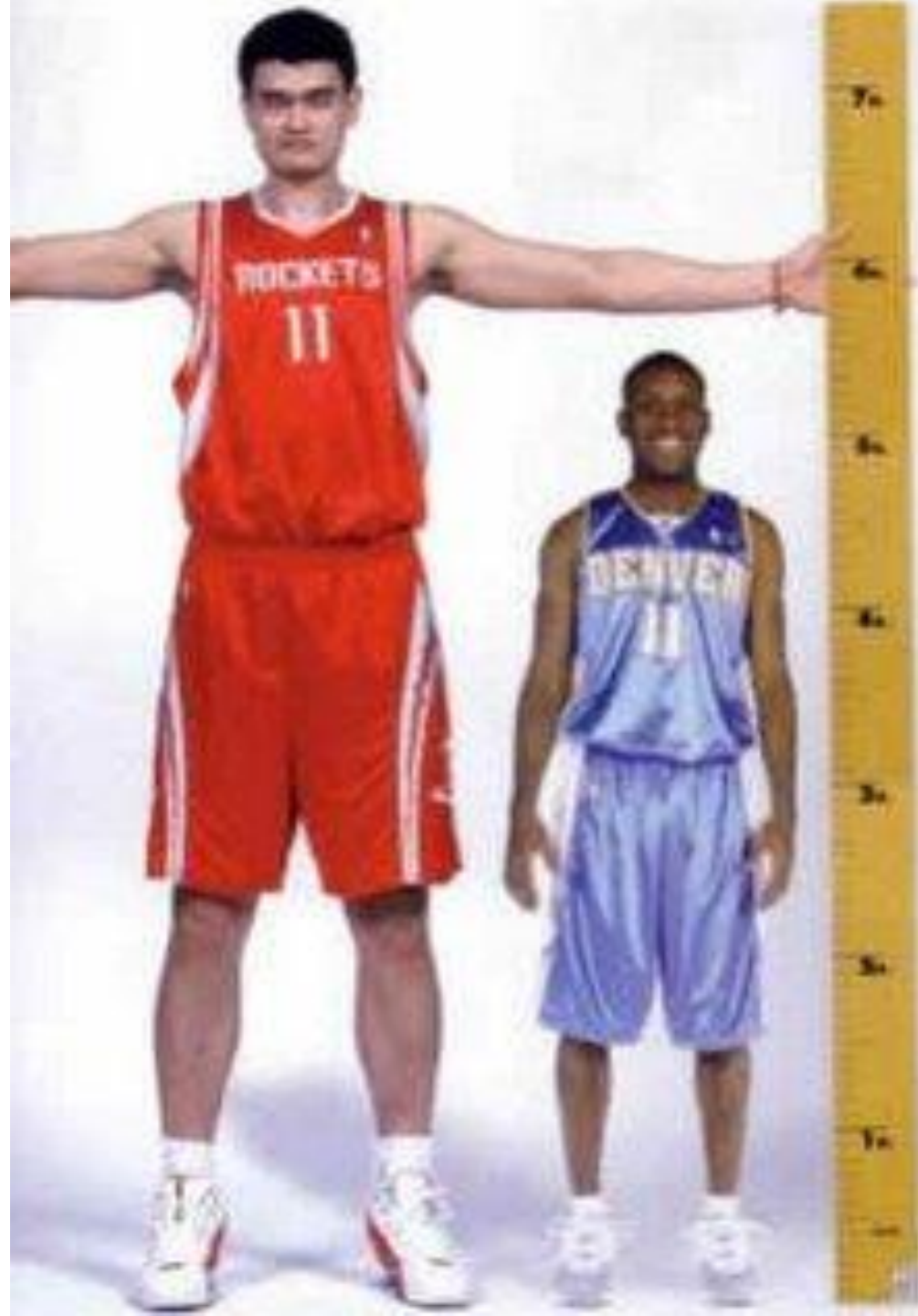
Antes → gigantismo

Após → acromegalia

# Osso Infantil

# Osso Adulto

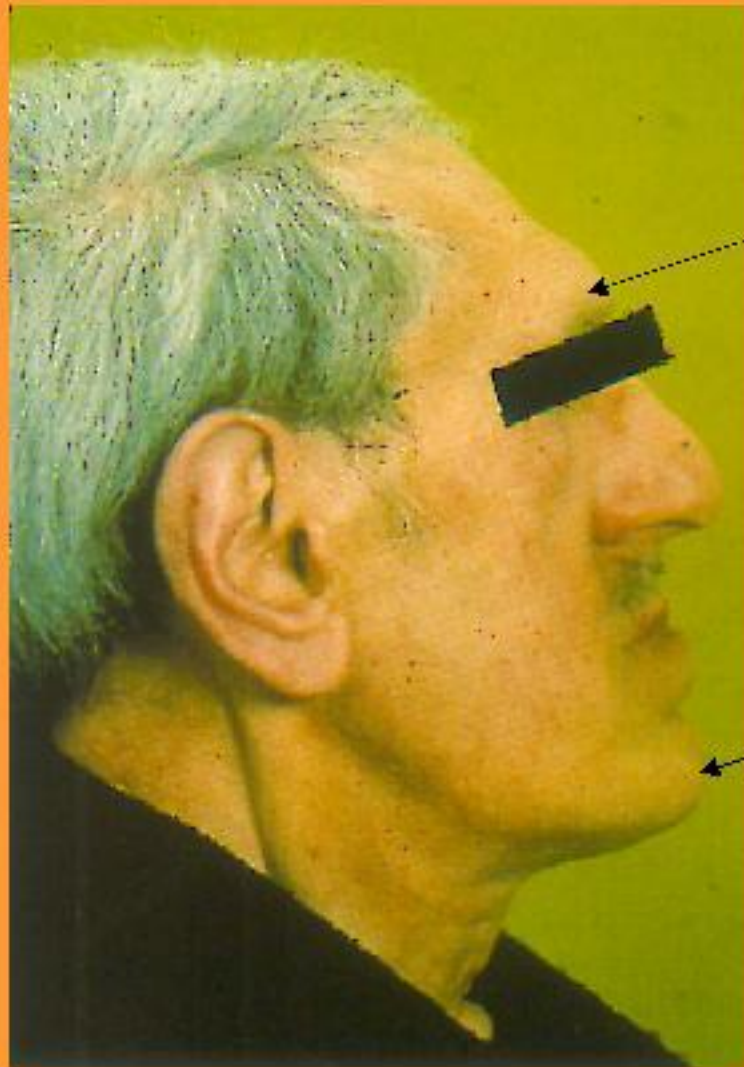






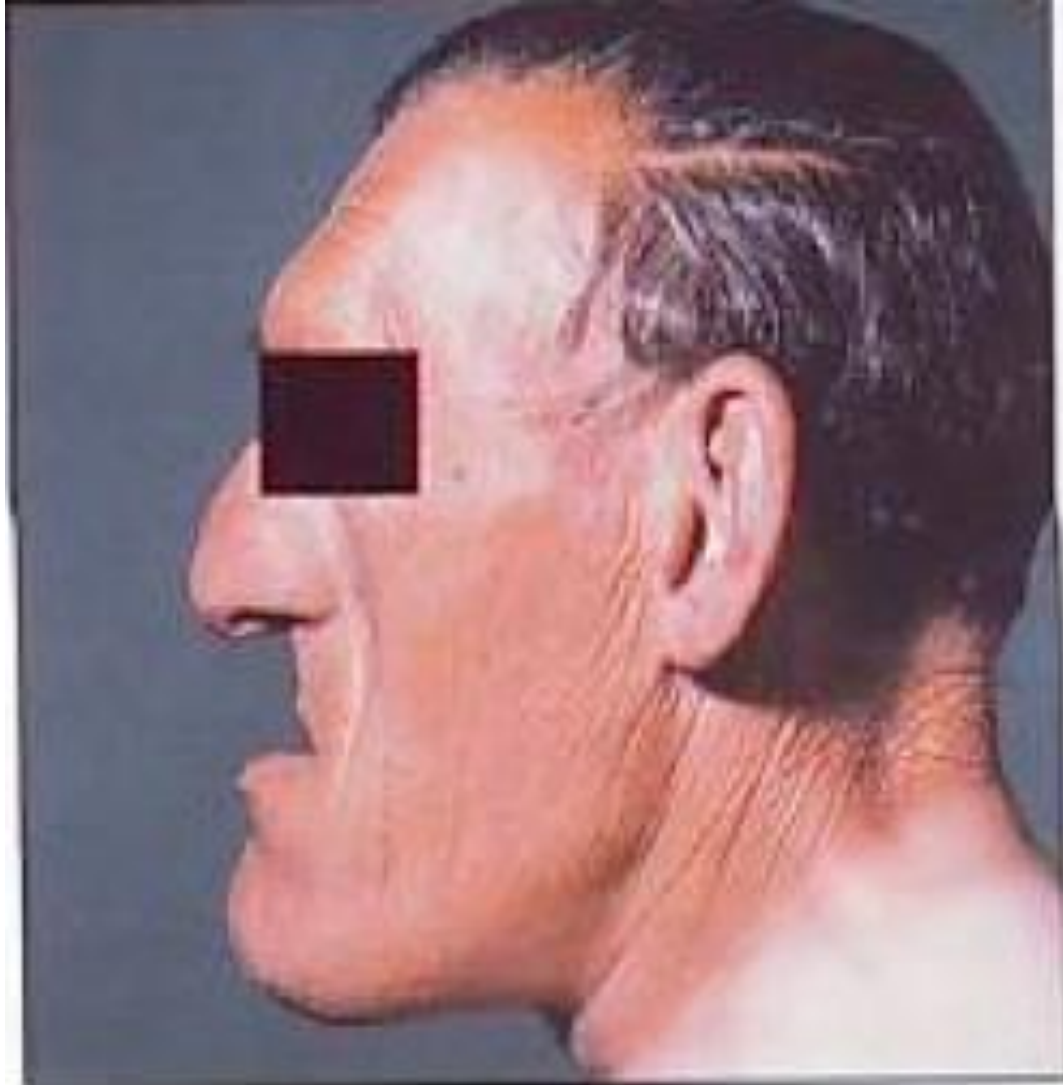
28740

# Acromegaly



Frontal Bossing

Chin Protrusion



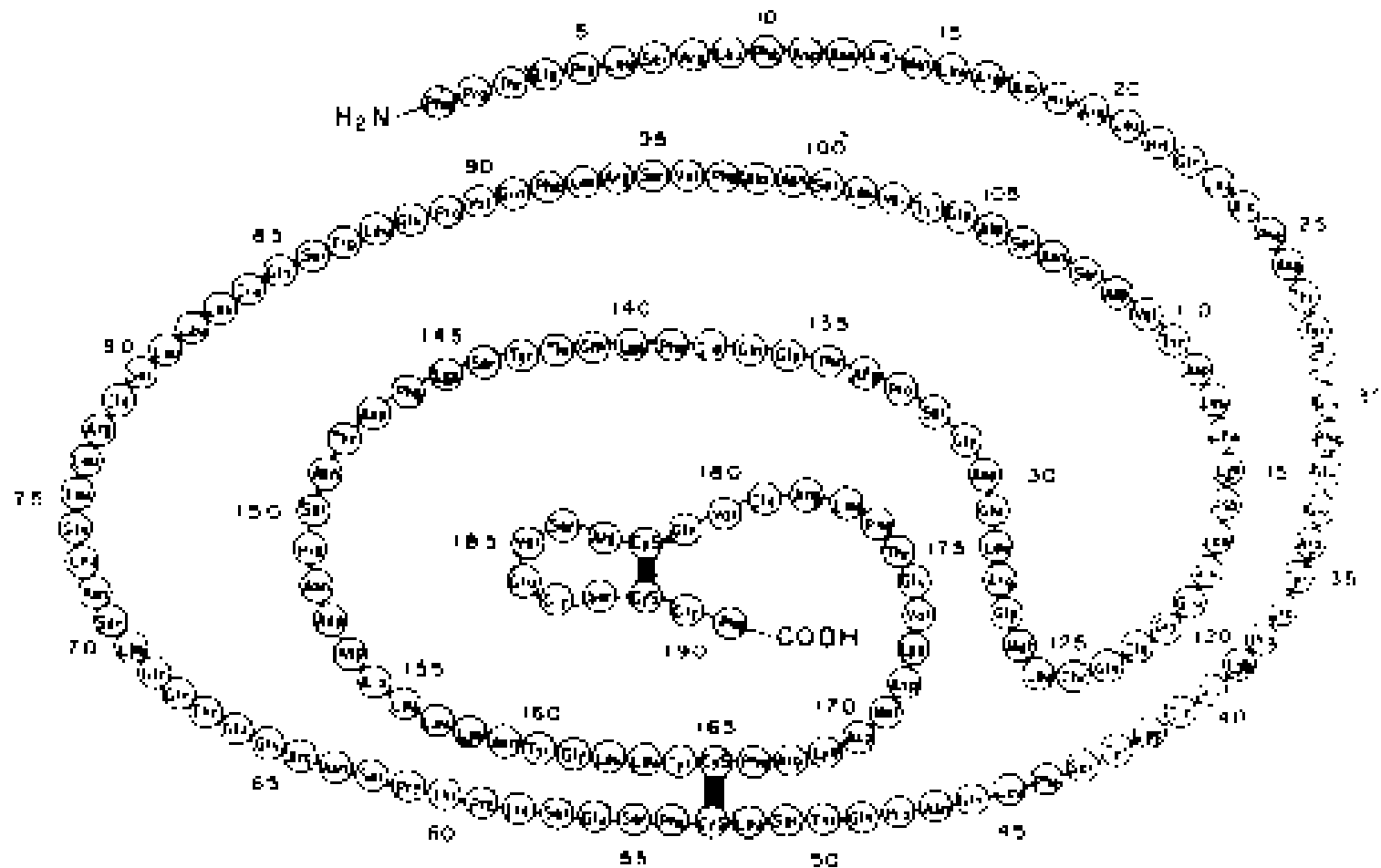
# Acromegaly

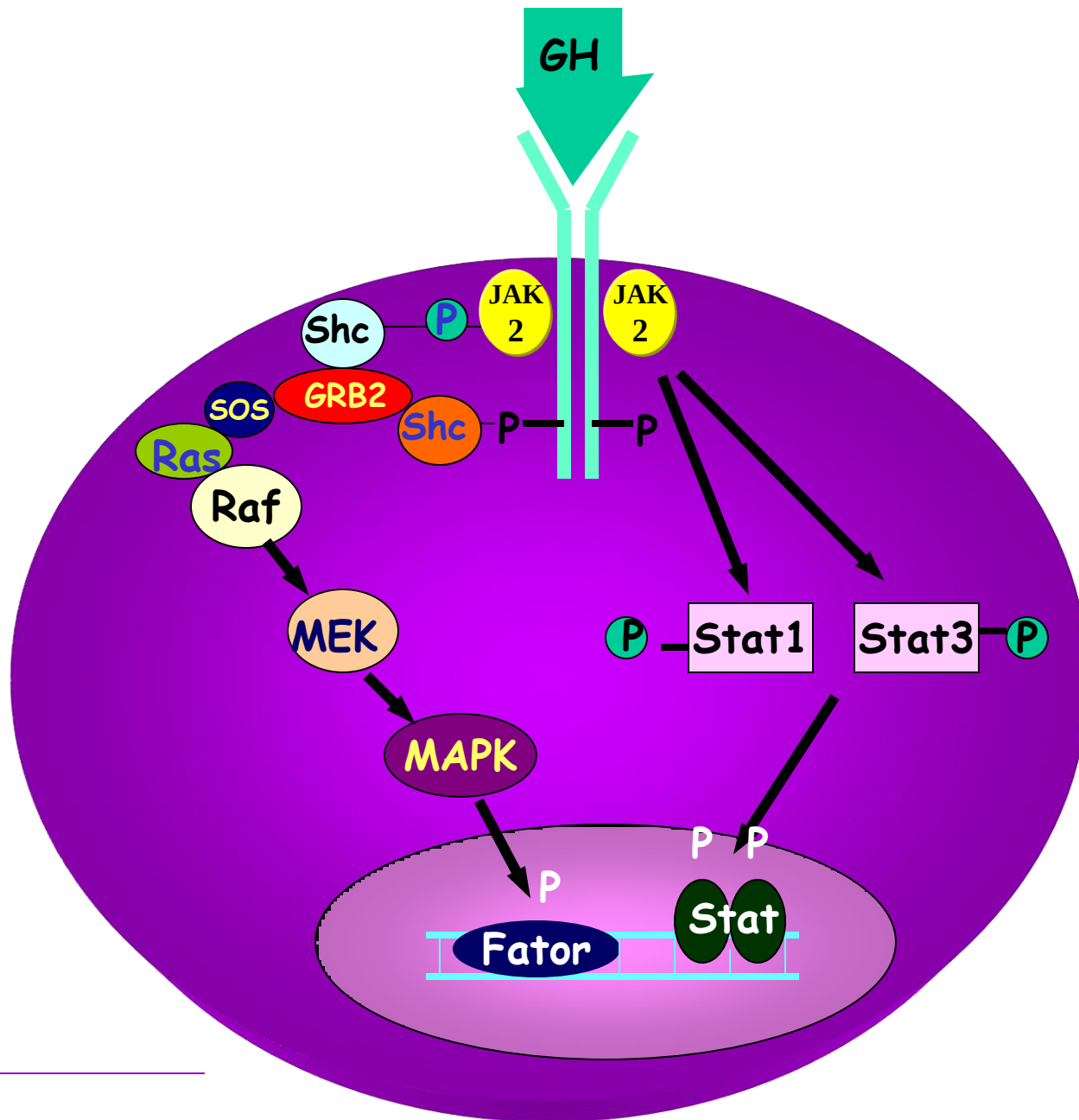


A patient with marked macroglossia. This can cause severe sleep apnea which can be associated with cardiac arrhythmias and sudden death.



# Considerações gerais sobre o hormônio:





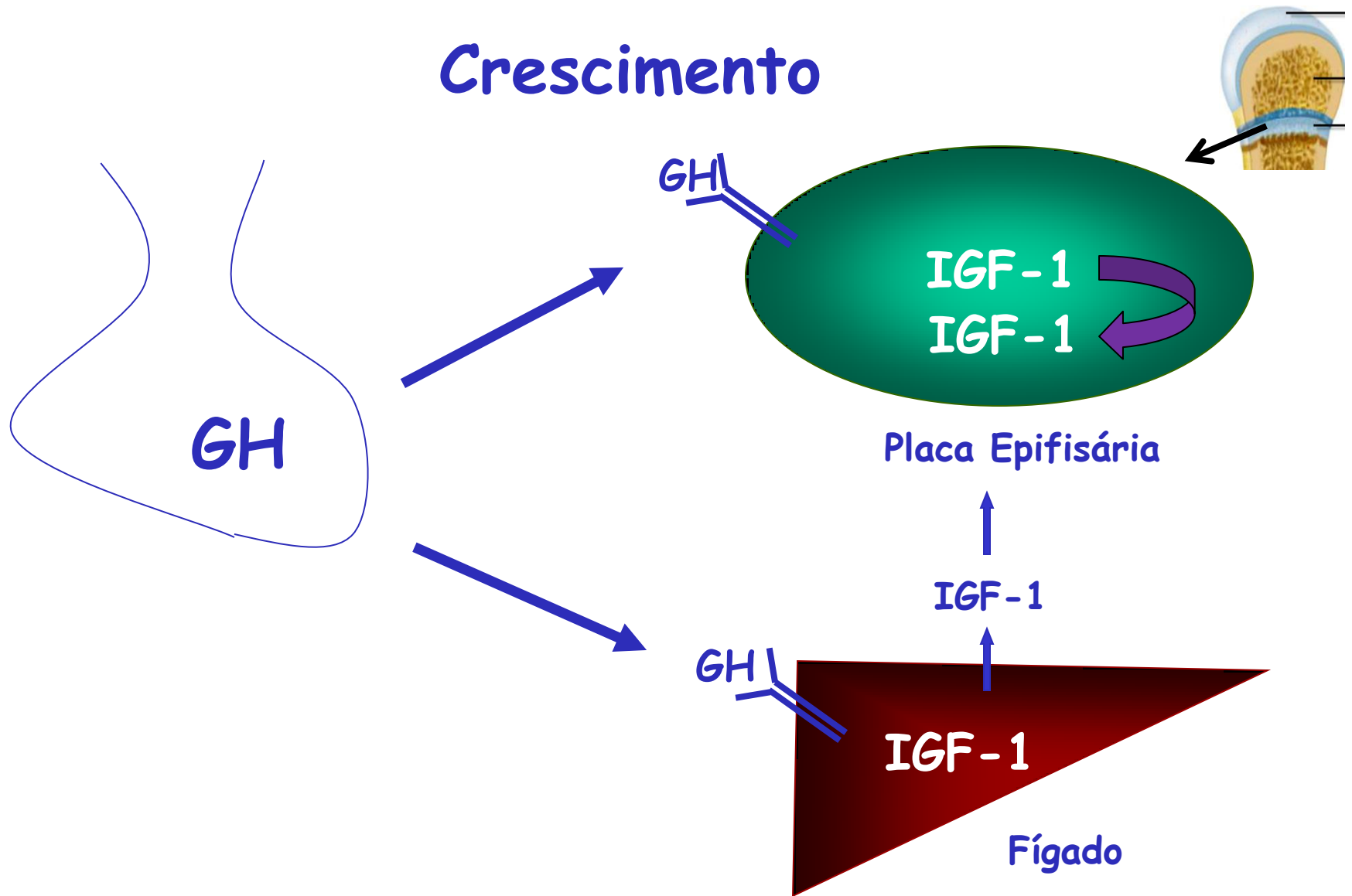
# Ações

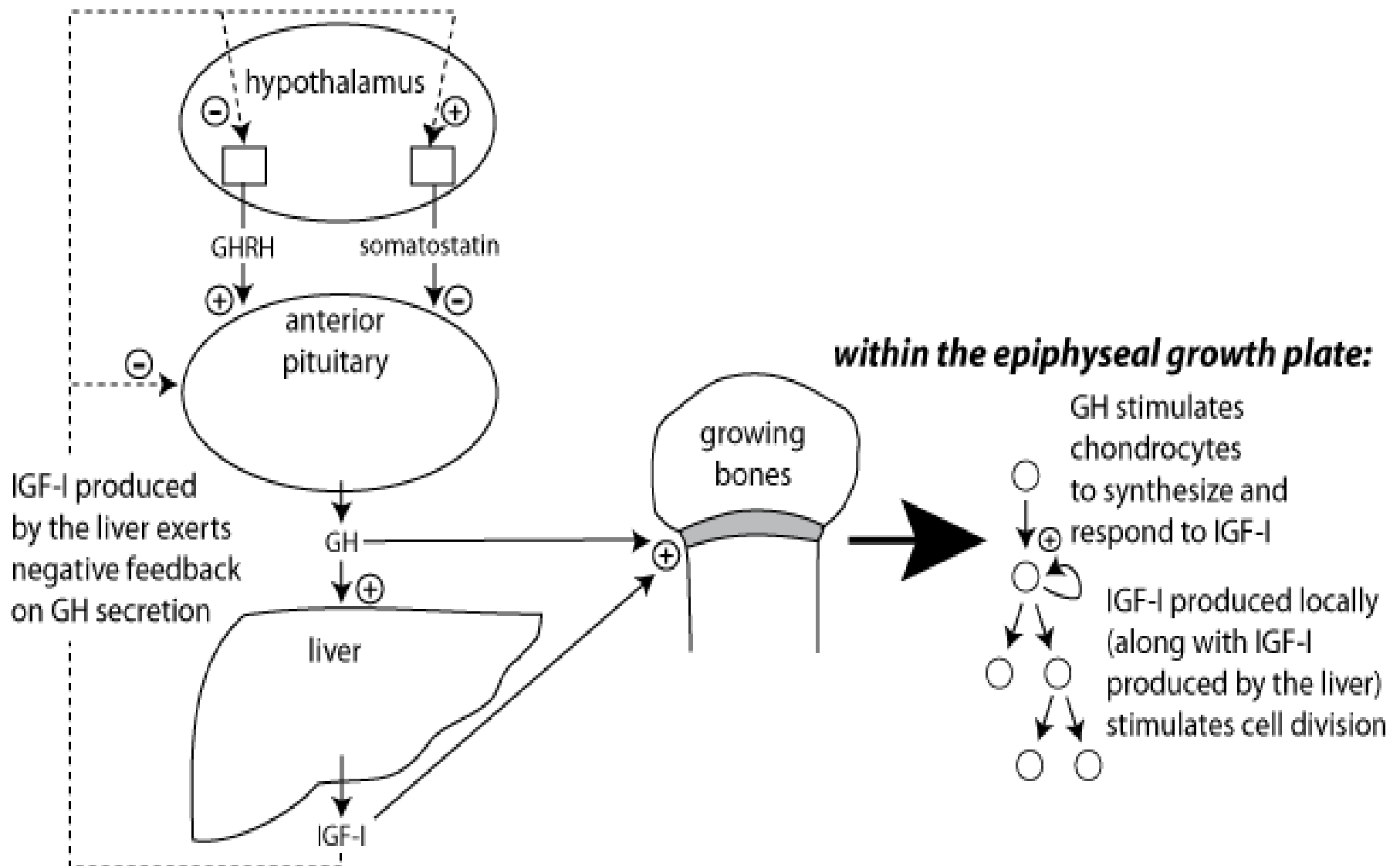
---

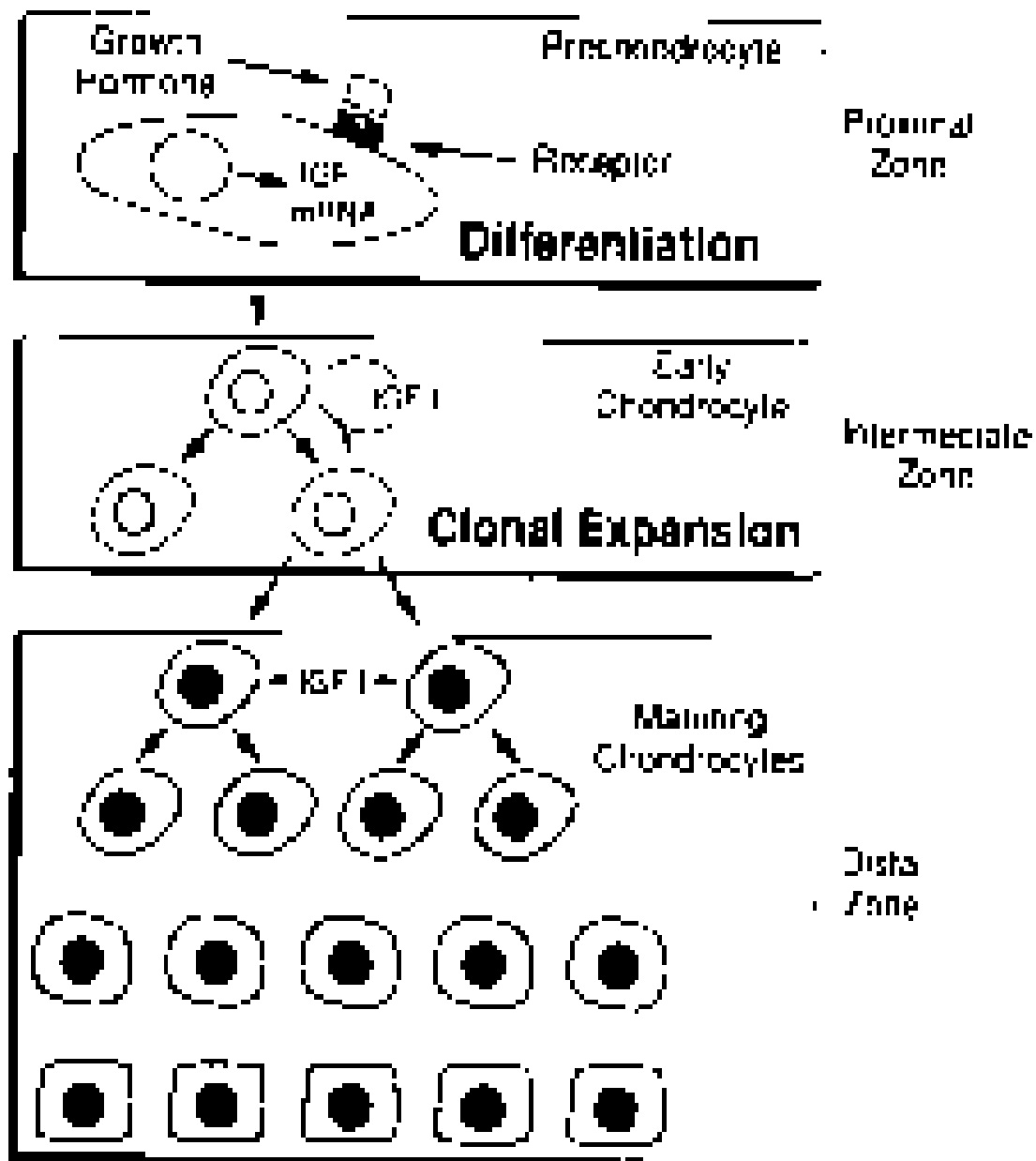
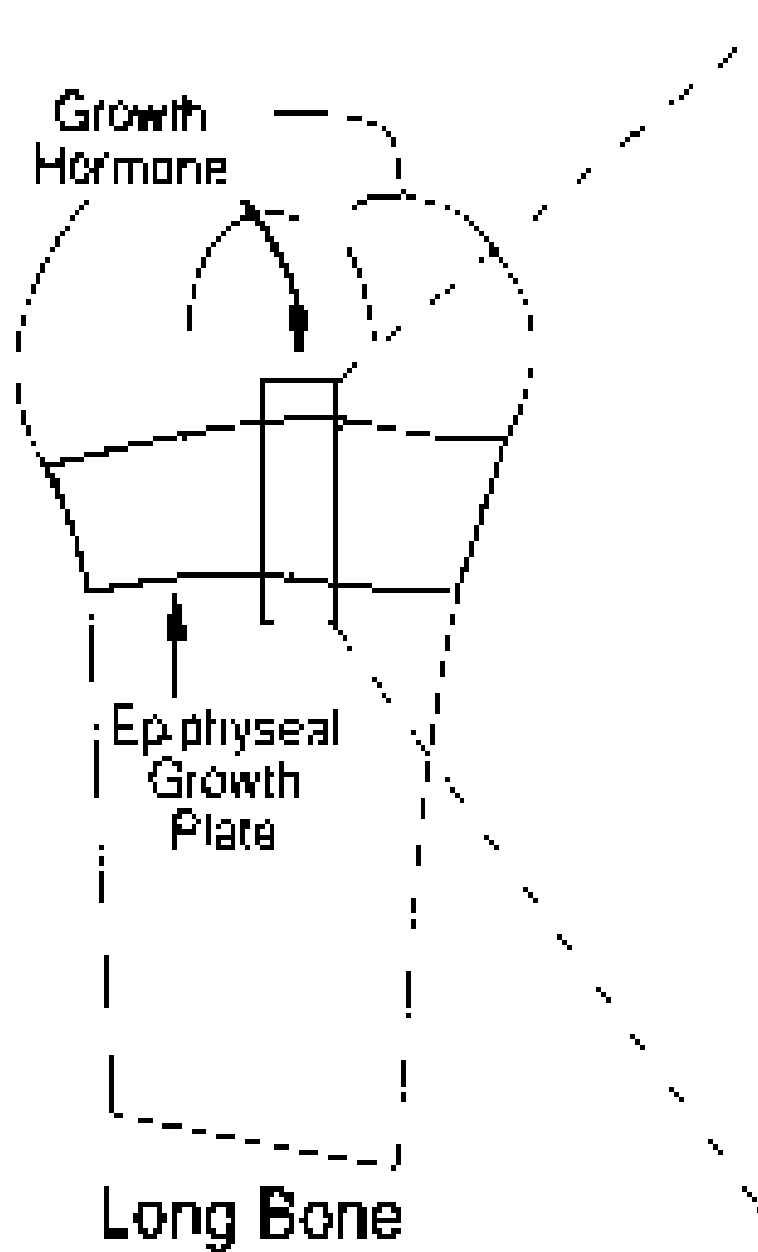
Crescimento  
Metabolismo

# Ações

## Crescimento







# Ação do GH via IGF-I

---

Receptores de IGF-I:  
expressos na maioria dos tecidos

Virtualmente todos os tecidos respondem ao aumento de GH

Hepatócitos  
adipócitos  
céls musculares  
e outros

Ossos regulares curtos  
frontais  
mandíbulas  
falanges distais  
metacarpo  
metatarso

# Ações

---

## Metabolismo

### Proteínas

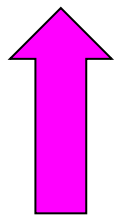
1-estímulo do transporte de aa

2-elevação do conteúdo intracelular de mRNA

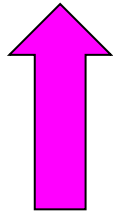


síntese de proteínas

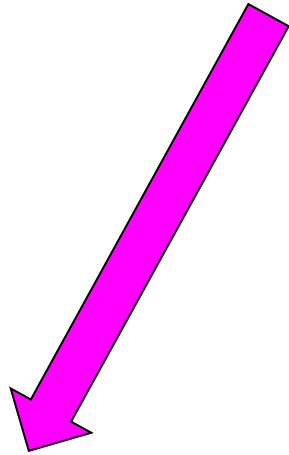
**Ações diretas e via IGF-I**



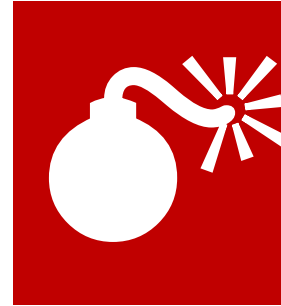
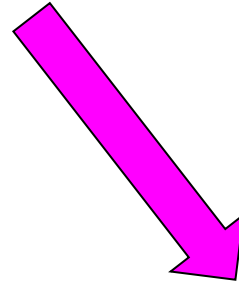
GH



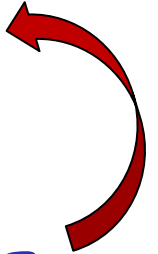
PROTEÍNAS



MÚSCULO  
ESQUELÉTICO



cavidades



MÚSCULO  
CARDÍACO

HIPERTROFIA CONCÊNTRICA

# Ações

## Metabolismo

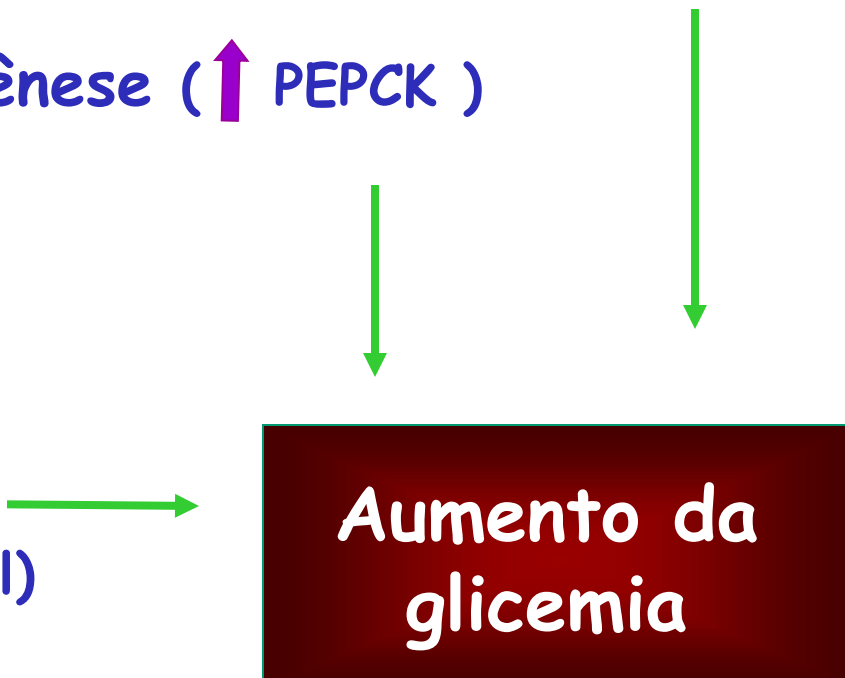
### Carbohidratos

1-Diminui a captação de glicose (*antagonismo à insulina*)

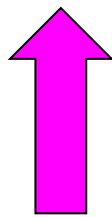
2-Aumenta a gliconeogênese (↑ PEPCK )

### Lípides

1-Aumento da lipólise  
( ↑ Lipase Hormônio Sensível)



Aumento da  
glicemia

 **GH (crônico)**

**Aumento da  
glicemia**

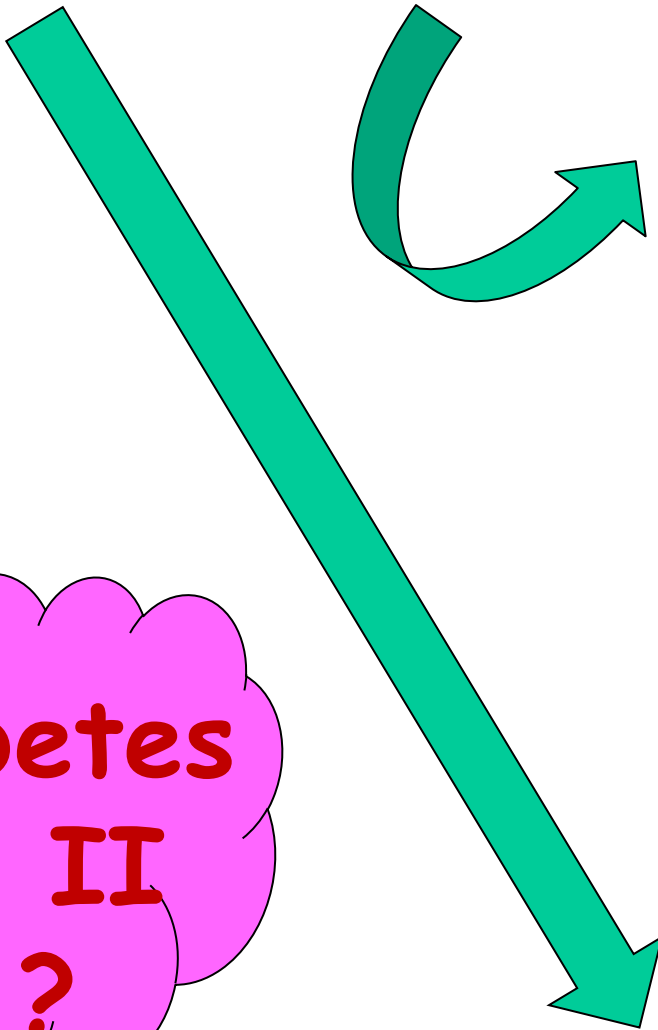
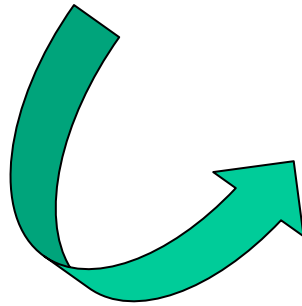


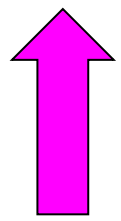
**HIPERINSULINEMIA**



**Resistência à insulina**

**Diabetes  
Tipo II  
?**





**GH (crônico)**



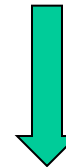
**Aumento de  
AG circulantes**



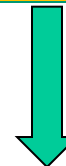
**Diminui utilização de  
Glicose pelas céls**



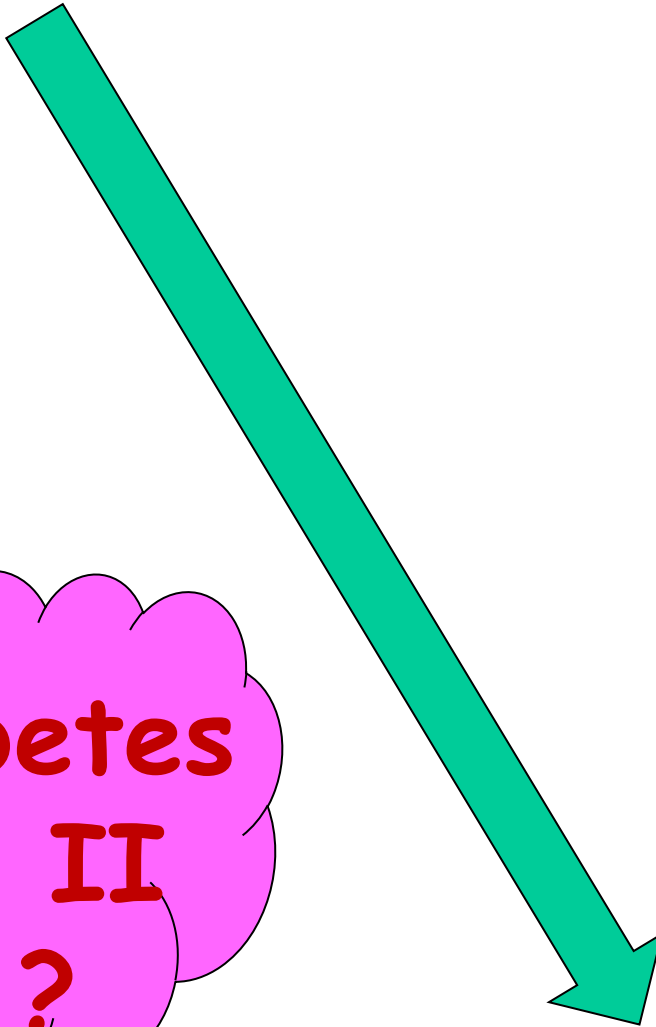
**Aumento da glicemia**



**HIPERINSULINEMIA**



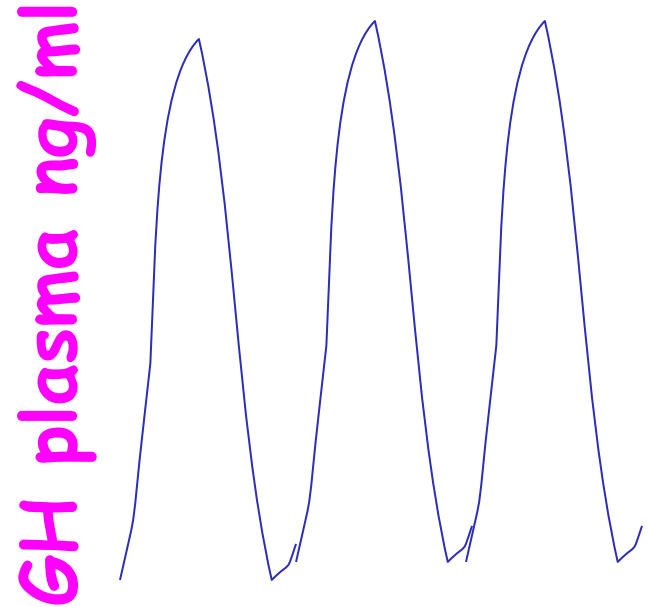
**Resistência à insulina**



**Diabetes  
Tipo II  
?**

# Secreção

- pulsátil
- diminui com a idade  
(↑ Somatostatina)
- ritmo ultradiano
- intervalos variáveis



# REGULAÇÃO DA SECREÇÃO

---

GHRH

Somatostatina

IGF

