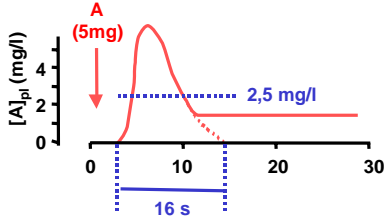
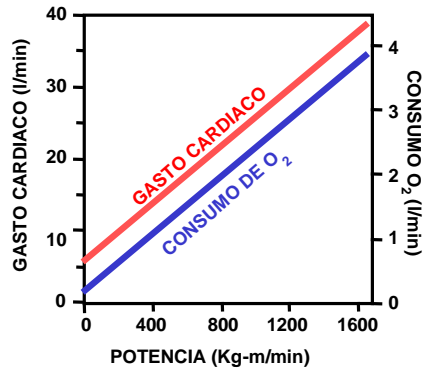
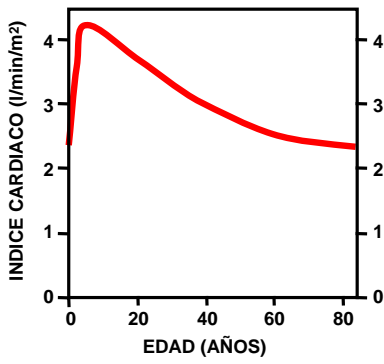
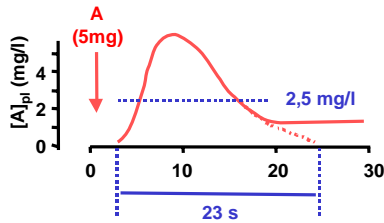


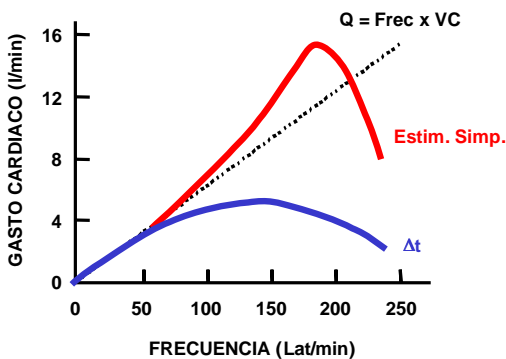
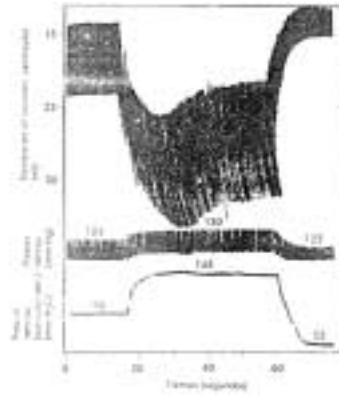
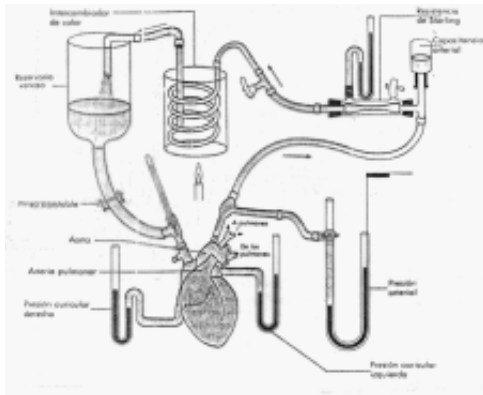
# VOLUMEN/MINUTO Y SU REGULACION



$$\dot{Q} = \frac{A}{[A] \times t} = \frac{5 \text{ mg}}{12/60 \text{ min} \times 2,5 \text{ mg/ml}} = 10 \text{ l/min}$$



$$\dot{Q} = \frac{A}{[A] \times t} = \frac{5 \text{ mg}}{23/60 \text{ min} \times 2,5 \text{ mg/ml}} = 5 \text{ l/min}$$



## FACTORES DE LOS QUE DEPENDE EL VOLUMEN/CONTRACCIÓN (VC)

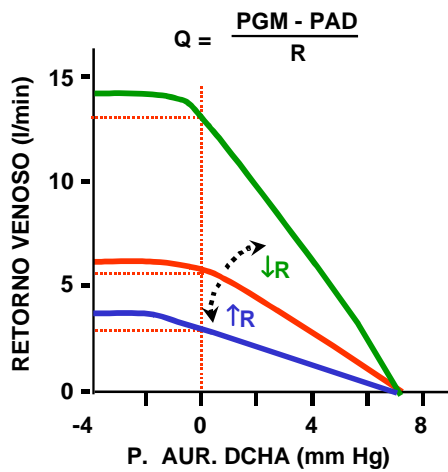
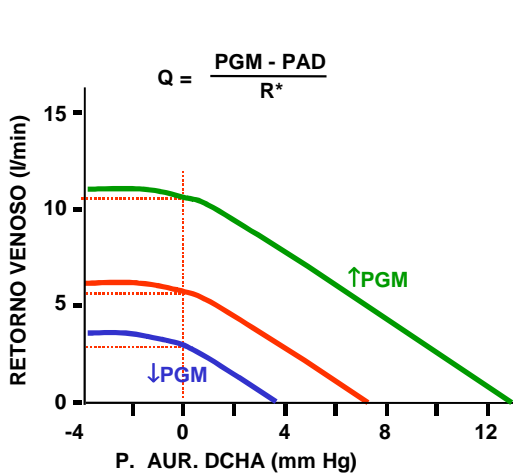
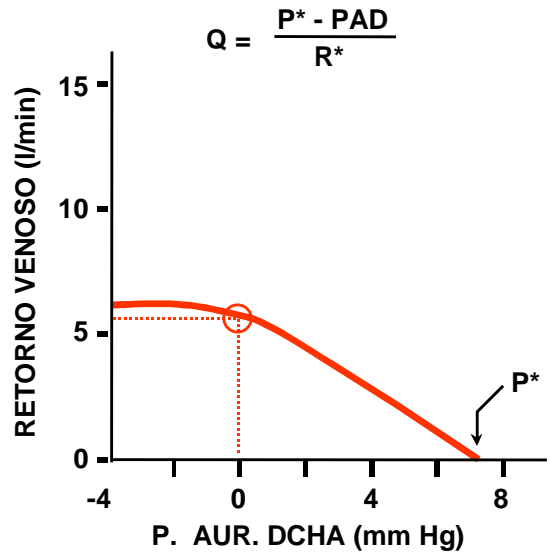
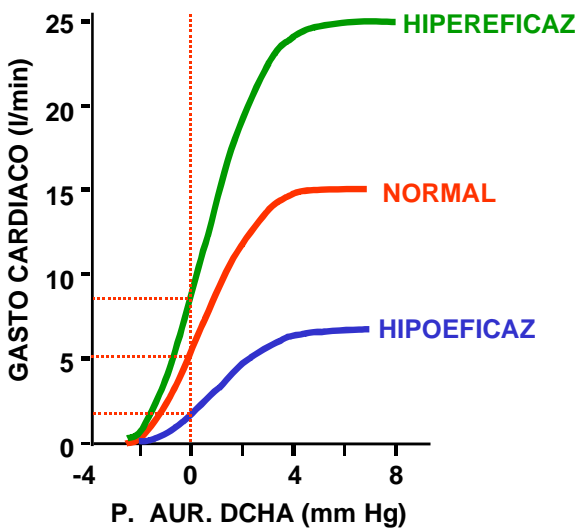
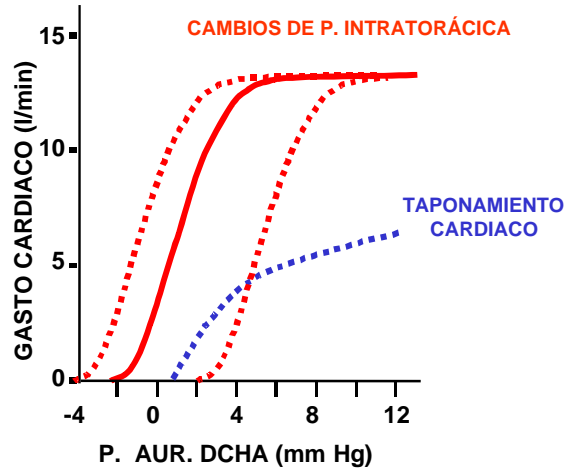
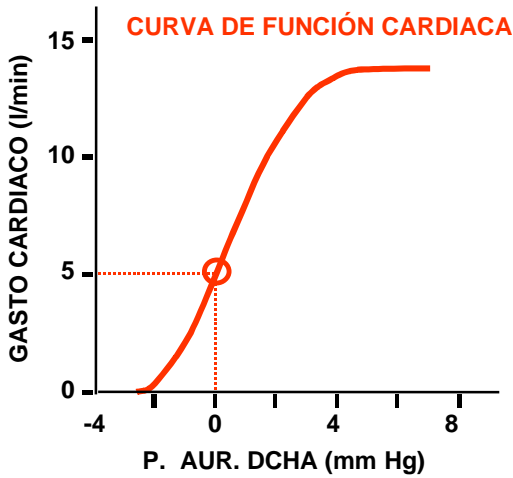
$$VC = VDF - VSF$$

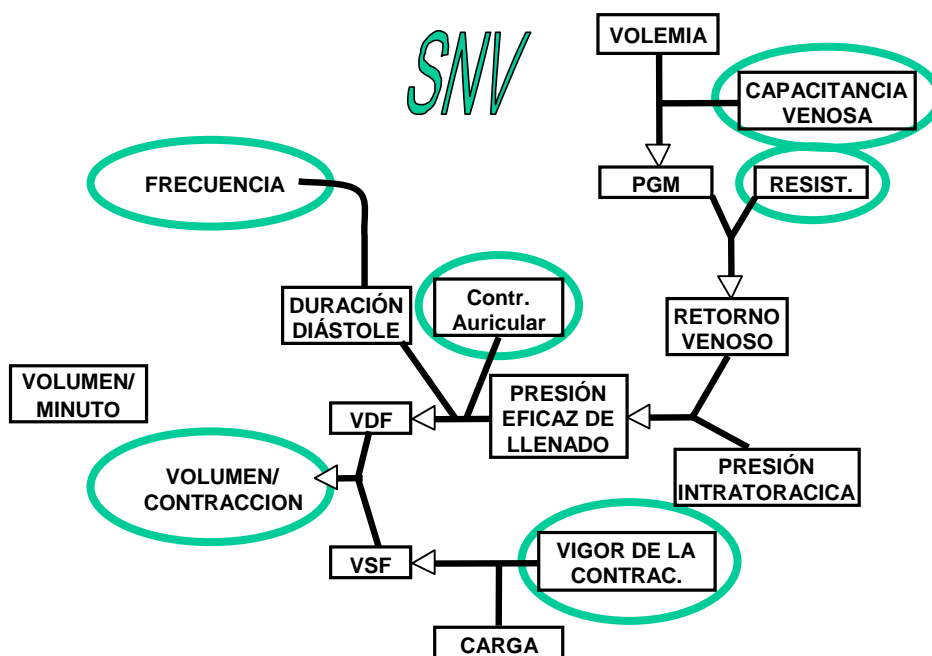
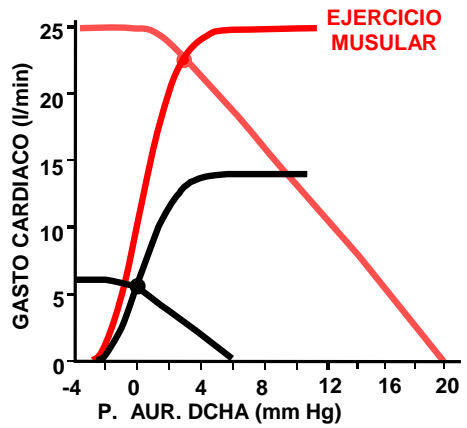
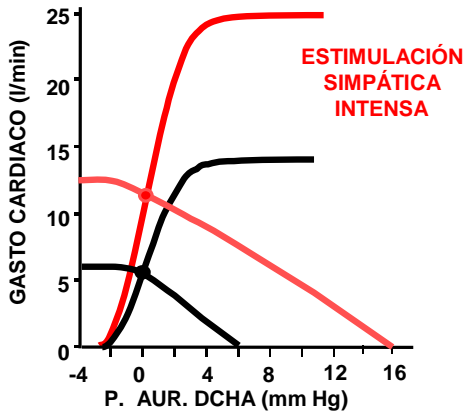
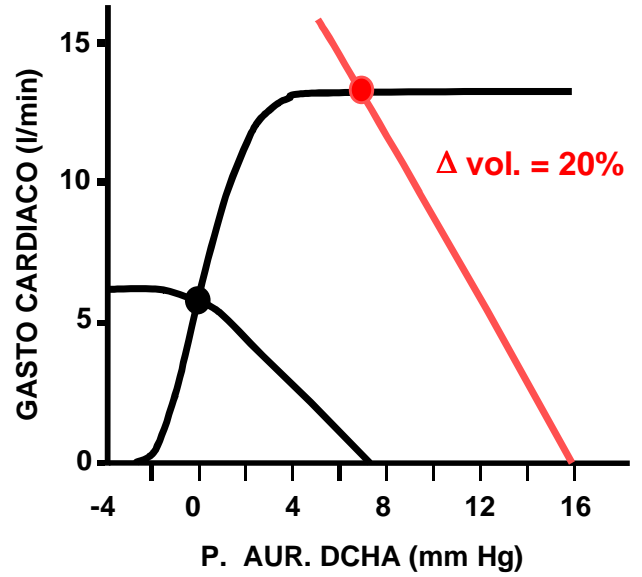
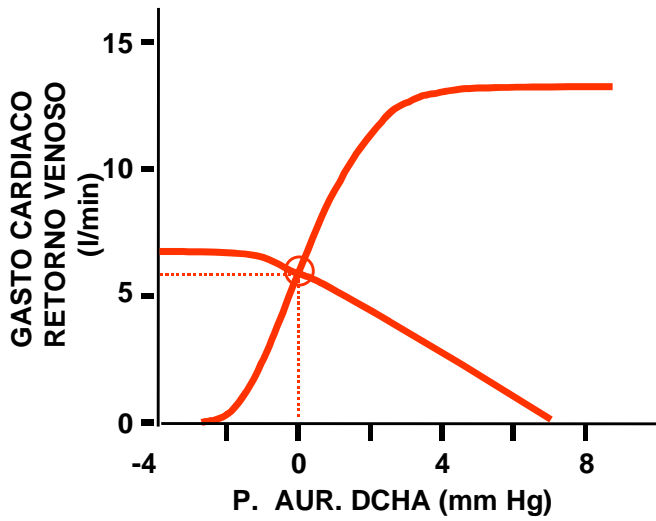
### 1. VDF (Llenado, Precarga)

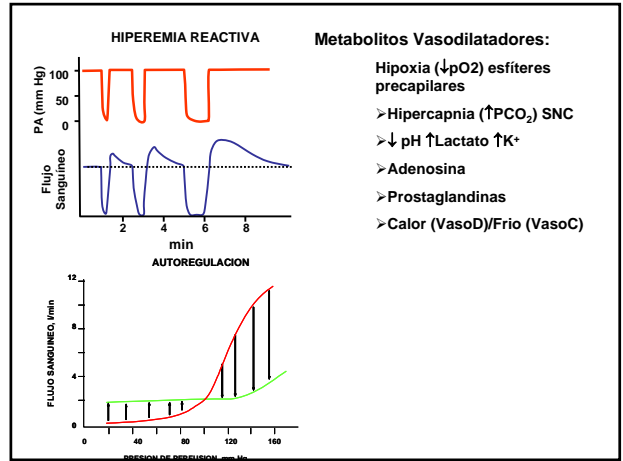
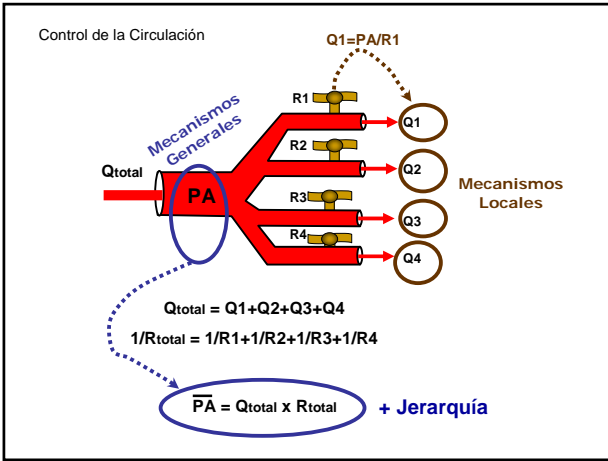
- Tiempo de llenado (frecuencia)
- Presión efectiva de llenado
  - Presión venosa central
  - Presión intratorácica
- "Distensibilidad" del músculo cardíaco
  - Recuperación elástica (viscosidad)
  - Presión intrapericárdica
- Contracción auricular

### 2. VSF

- Fuerza de contracción (contractilidad, vigor)
  - Factores intrínsecos
  - Factores extrínsecos
- Carga ventricular (postcarga; presión arterial)







**OXIDO NÍTRICO = EDRF**

**Endothelium-dependent Relaxation**

endothelium

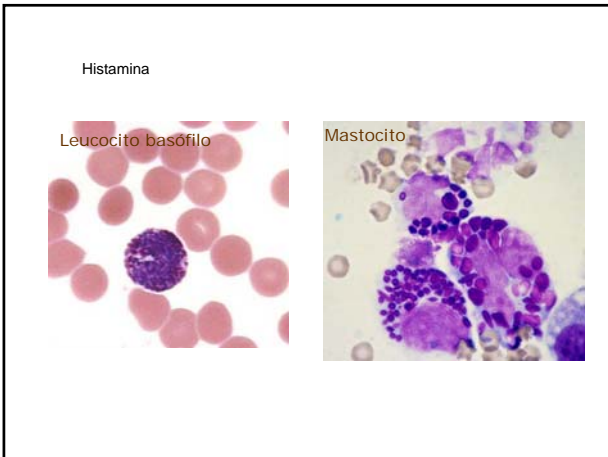
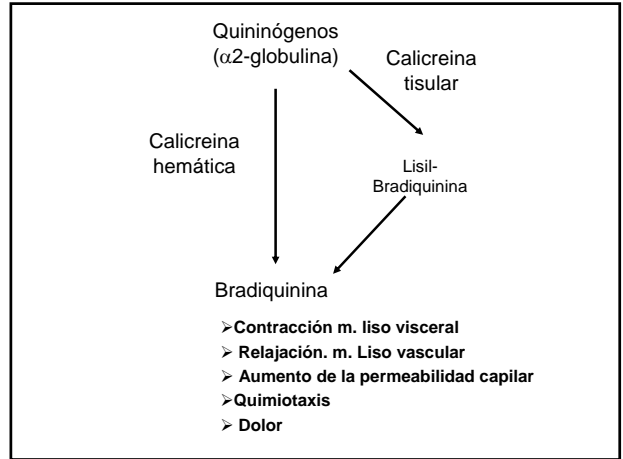
smooth muscle

Barnd Mayer, March '96

Dr. Robert Furchtgott

Dr. Ignarro

Dr. Moncada



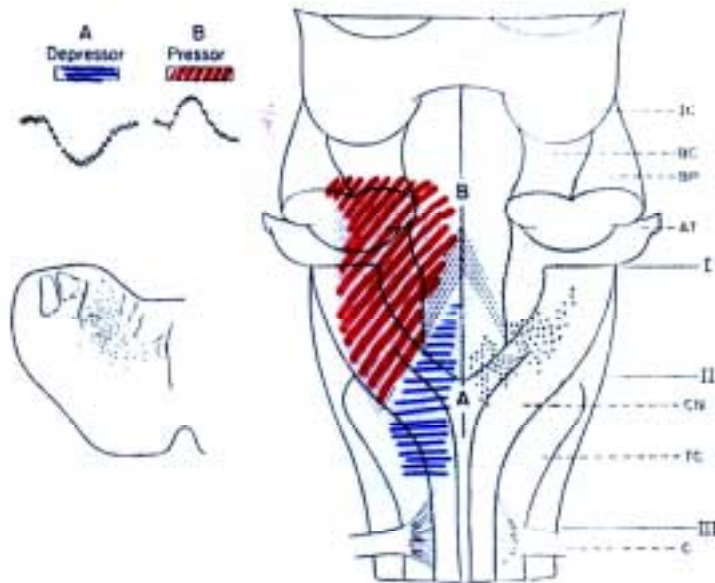
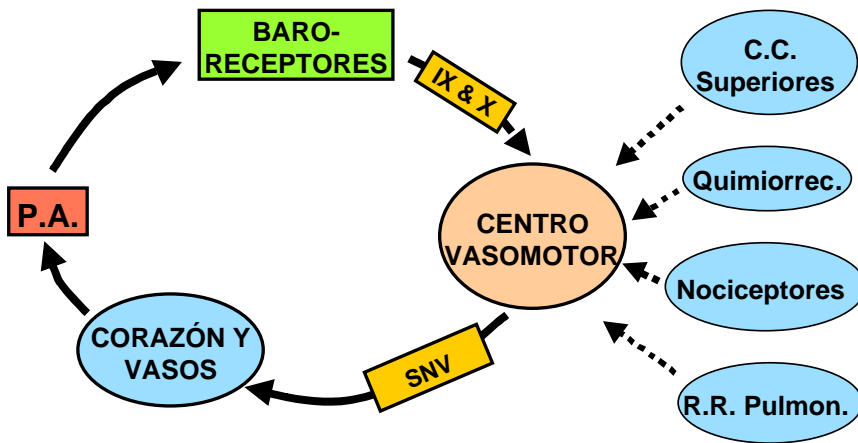
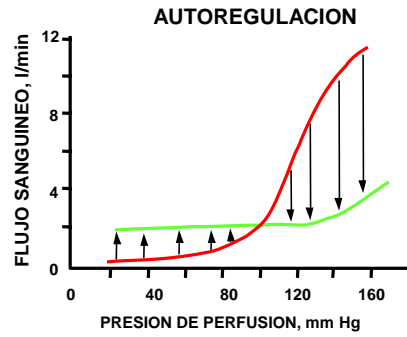
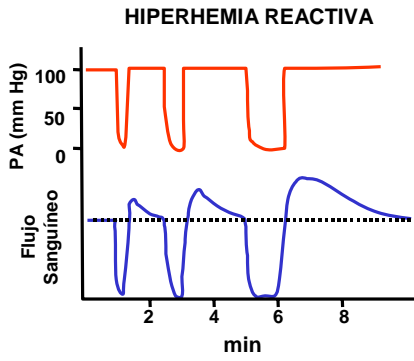
**Mecanismos humorales generales:**

**Vasoconstrictores:**

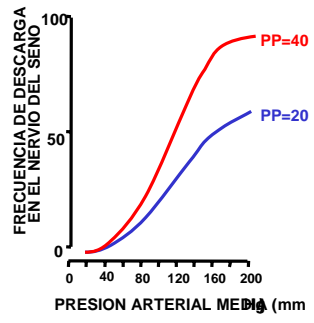
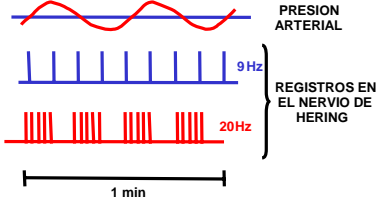
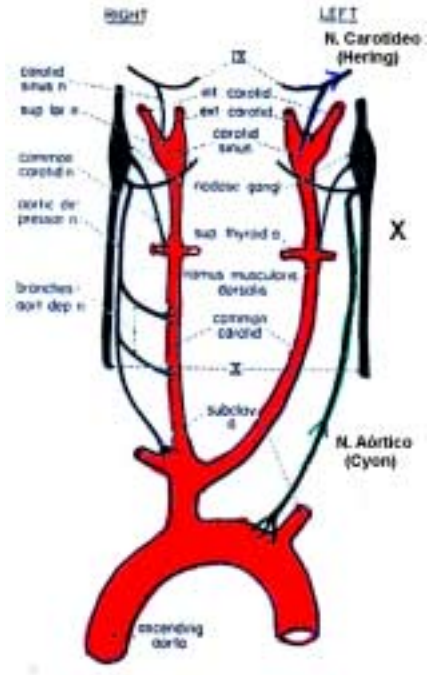
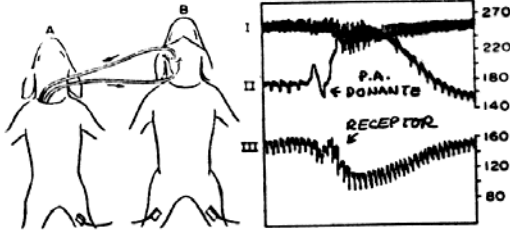
- $\text{NAd y Ad}$
- $\text{Angiotensina } (1\mu\text{g} \rightarrow 50 \text{ mm Hg})$
- Vasopresina
- Endotelina

**Vasodilatadores:**

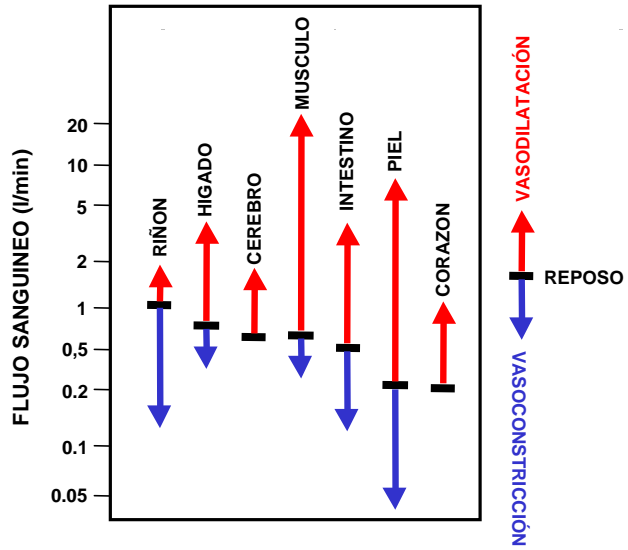
- BDQ
- Histamina
- Serotonina (+/-)
- Prostaglandinas (+/-)

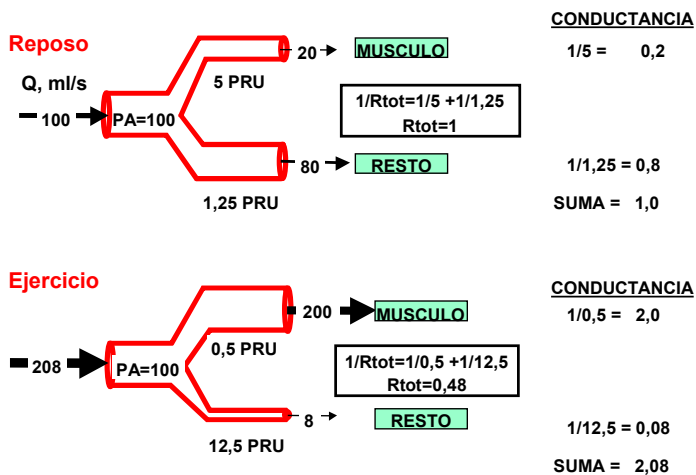


EXPERIMENTO DE HEYMANS



TERRITORIO	Peso (Kg)	Flujo Sanguíneo (ml/min)	ml/100g/min
VISCERAS	4	1400	35
MUSCULO	30	1200	4
RIÑONES	0,3	1100	350
CEREBRO	1,4	750	55
PIEL	7	350	0,5
CORAZÓN	0,35	300	85
OTROS	24	900	3,7
<b>TOTAL</b>	<b>67</b>	<b>6000</b>	<b>8,5</b>





Ejercicio muscular

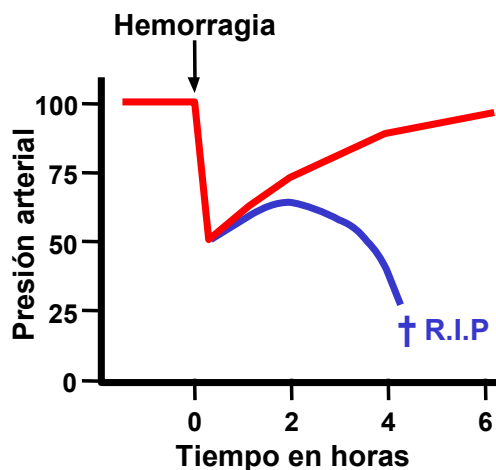
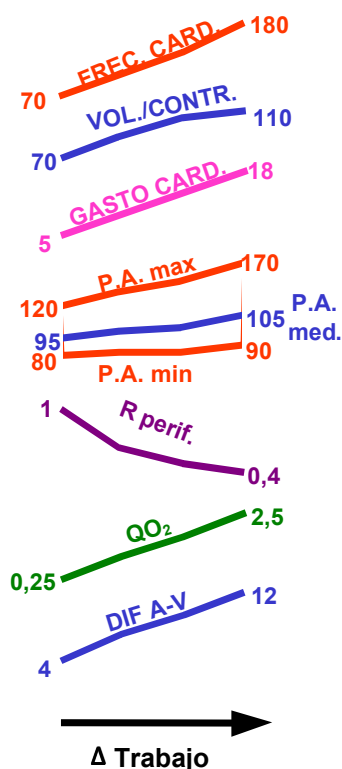
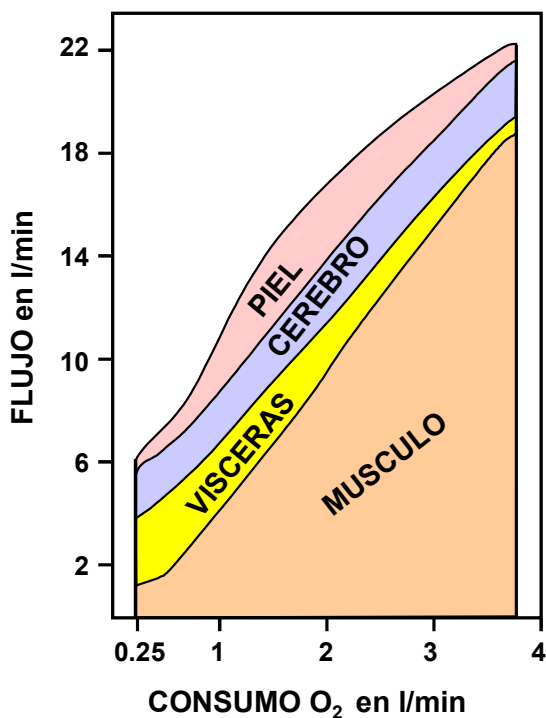
LOCAL:

- Vasodilatación muscular
- ? Capacitancia venosa

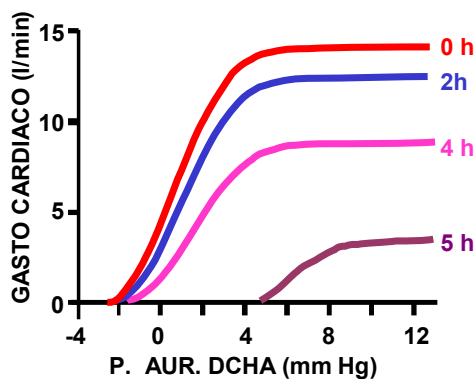
GENERAL:

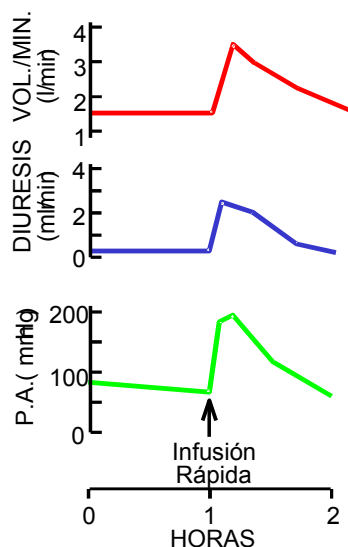
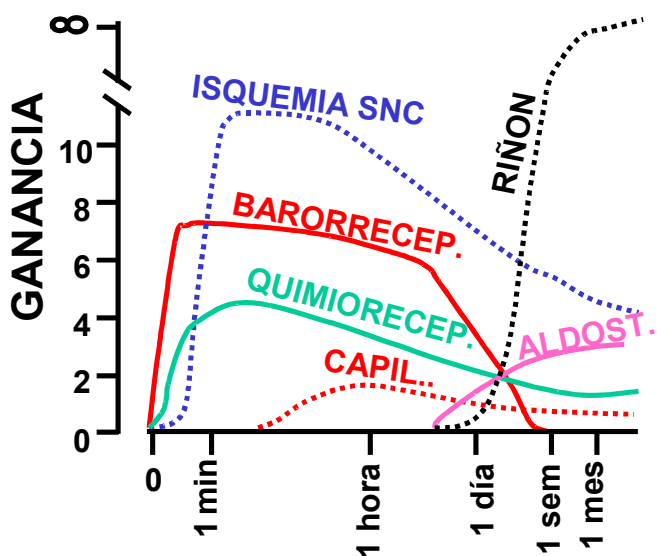
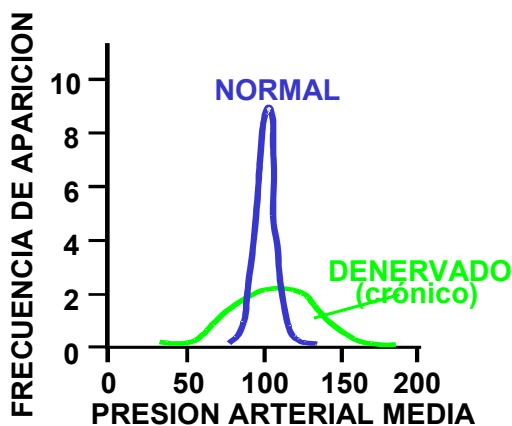
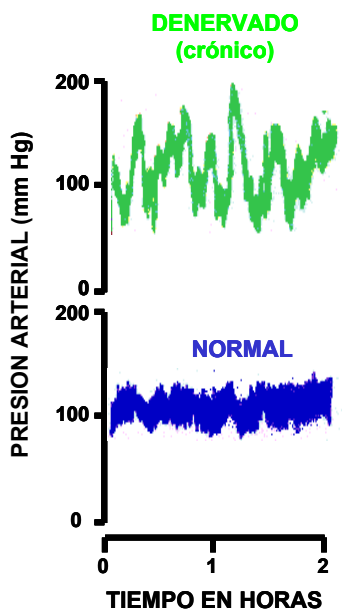
- SNC: A.A. motoras
- Barorreceptores arteriales
- Quimiorreceptores
- Receptores musculares

- ? Gasto cardiaco
- ? R. Musculares
- ? Capacitancia venosa
- ? R. Visceras, riñón, [piel]



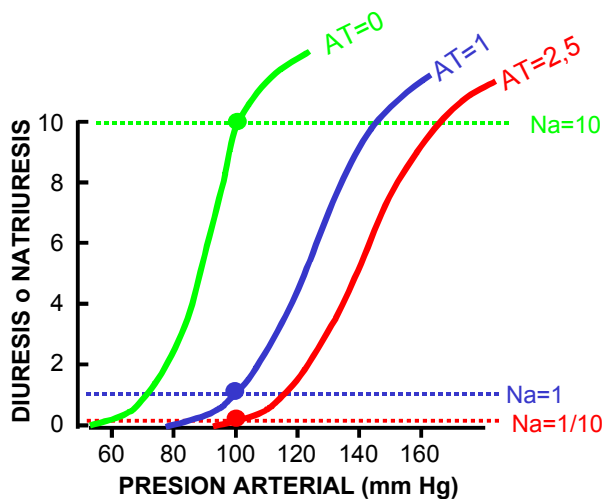
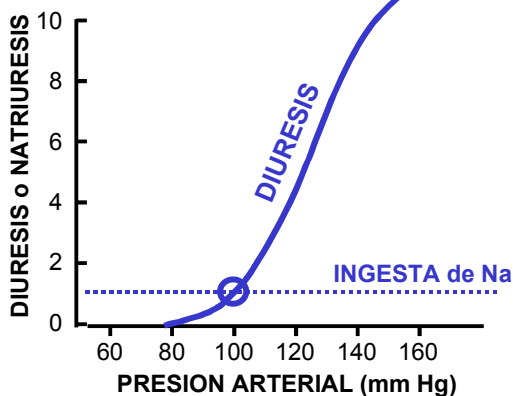
Deterioro de la función cardiaca en el shock hemorrágico



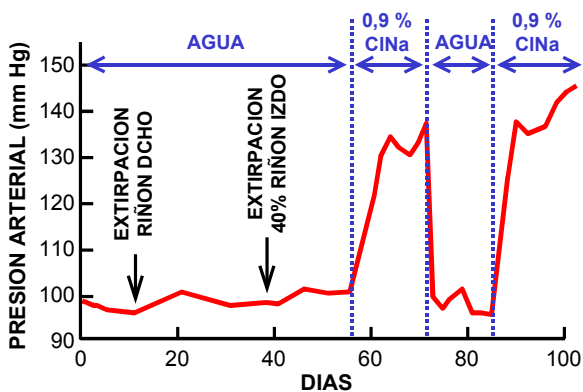
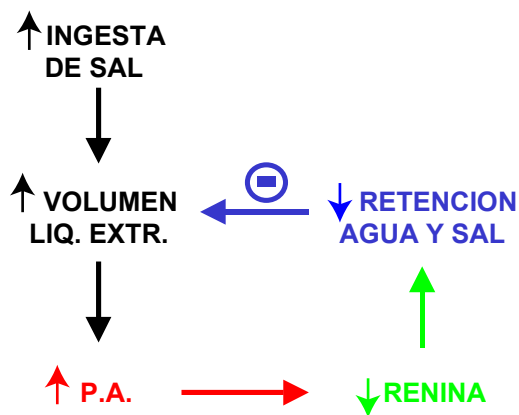
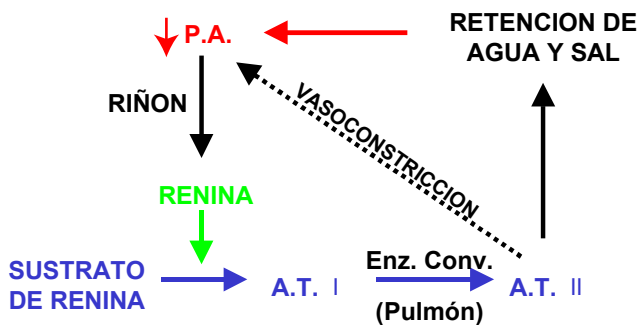


Efectos del aumento de la volemia perros con bloqueo de los mecanismos nerviosos del control de la presión arterial

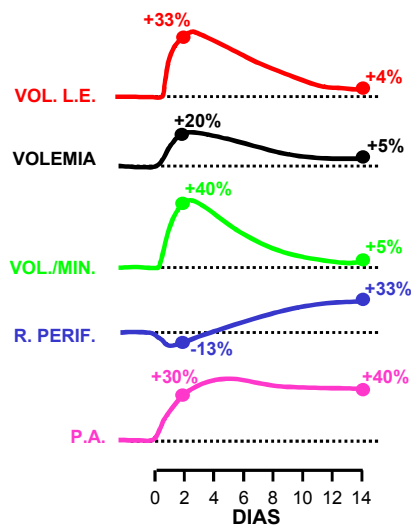
**CURVA DE FUNCION RENAL**



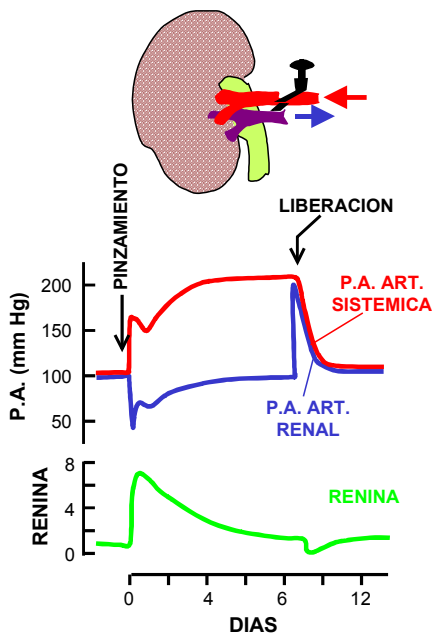




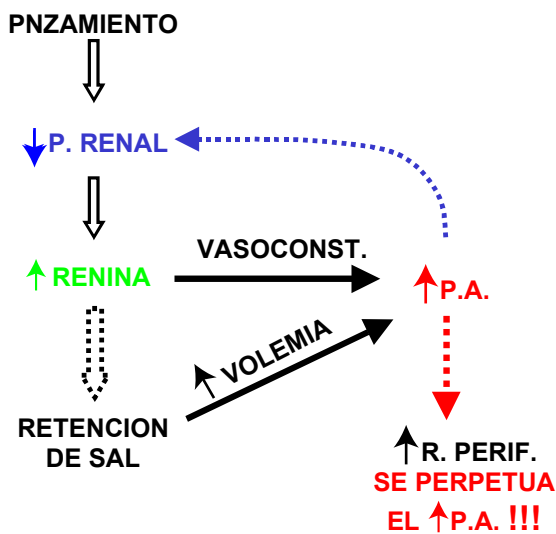
HIPERTENSION POR SOBRECARGA DE VOLUMEN EN PERROS CON REDUCCION DE LA MASA RENAL. Langston et al. Circ. Res. 12, 508 (1963)



EVOLUCION DE VARIOS PARAMETROS EN LAS DOS PRIMERAS SEMANAS DE LA HIPERTENSION POR SOBRECARGA DE VOLUMEN EN EL PERRO



HIPERTENSION TIPO GOLDBLATT (1 riñón)



## HIPERTENSION “ESENCIAL”

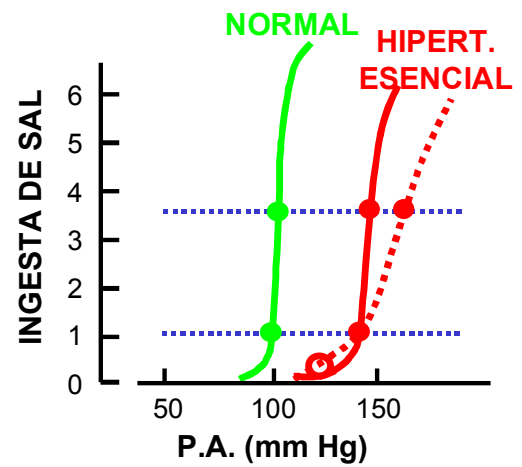
AUMENTO P.A. Media +40-60%

FLUJO SANGUINEO NORMAL

RESISTENCIAS PERIFERICAS  
AUMENTADAS

SUELE ACOMPAÑARSE DE  
ALTERACIONES RENALES

CURVA DE FUNCION RENAL  
DESPLAZADA A LA DERECHA  
(2 variantes)



### TRATAMIENTO:

- RESTRICCIÓN DE SAL
- DIURETICOS
- VASODILATADORES [Renales]

