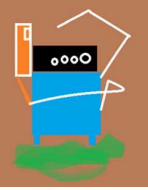


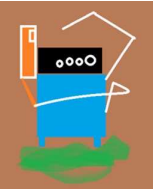
Bases de la Ventilación Mecánica Parte 1



Dr. José V. España Pino

Mayo 2025

JVEP



La ventilación es simplemente el movimiento de aire hacia adentro y hacia afuera de los Pulmones.

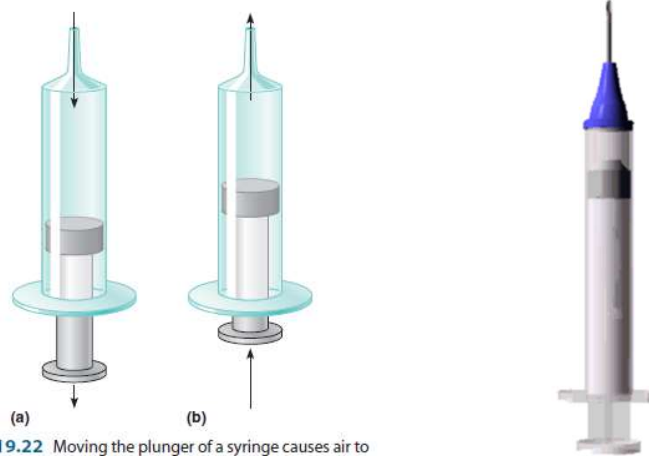
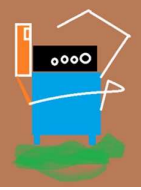


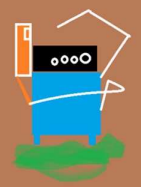
FIGURE 19.22 Moving the plunger of a syringe causes air to move (a) in or (b) out of the syringe. Air movements in and out of the lungs occur in much the same way.

Que es un ventilador Mecánico ?



Un Ventilador Mecánico es una maquina Automática diseñada para proveer todo o Parte del trabajo que el cuerpo debe hacer Para mover aire dentro y fuera de los pulmones.





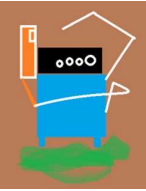
Tres tipos de Ventiladores Mecánicos

1.- Presión Negativa Intermitente.-

2.- Ventilación Alta Frecuencia.-

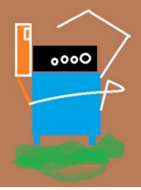
- Alta frecuencia con VM convencionales.-
- Ventilación Tipo Jet.-
- Oscilatoria .-

3.- Ventilación a Presión positiva intermitente.-



JVEP

Cuatro Principios de la Ventilación Mecánica



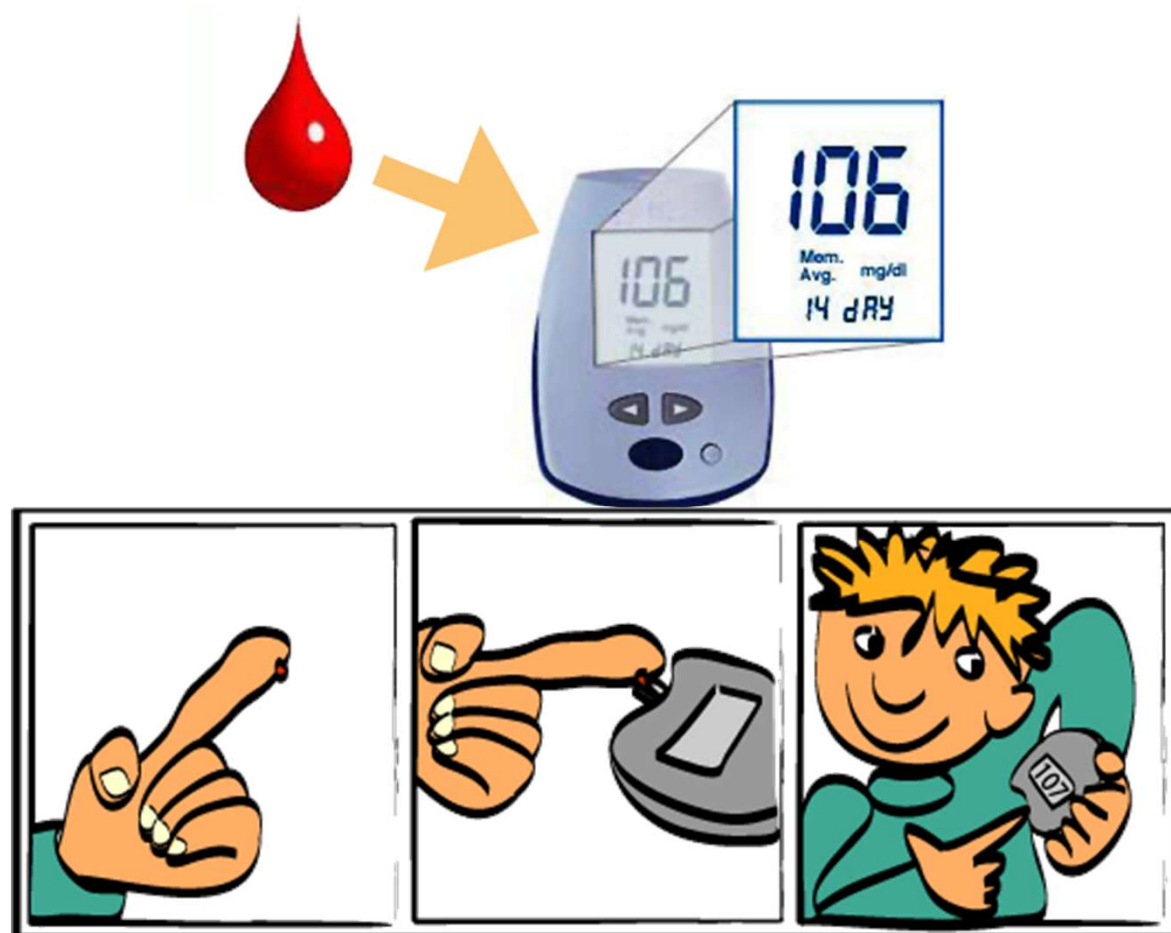
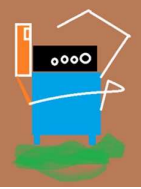
LOS GASES ARTERIALES Y EL EQUILIBRIO A-B EQUIVALEN EN VENTILACION MECANICA A



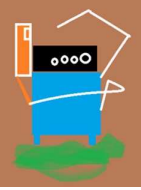
Tras localizar el área de pulso, se toma una muestra de sangre de la arteria



GLICEMIA EN PACIENTES DIABETICOS



Principio 1



- No se puede manejar pacientes en ventilación mecánica si no tenemos la posibilidad de realizar en sangre arterial determinaciones del equilibrio acido-base y gasometría.
- La Saturación de O₂ (Saturómetros) y la capnografía son métodos auxiliares mas no sustitutivos del anterior.

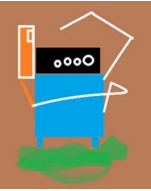
Principio 2

Leerse los catálogos de los equipos

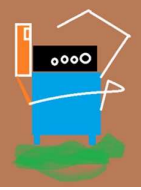
Todo el equipo asistencial debe estar

Entrenado en el manejo del ventilador.

Esto puede tardar hasta una semana



Principio 3



En caso de sospecha de mal funcionamiento del ventilador mecánico retirarlo

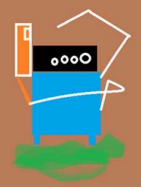
Nunca revisarlo conectado al paciente

Siempre es conveniente tener ventiladores Mecánicos de reserva

EL AMBU es el mejor Ventilador



Principio 4

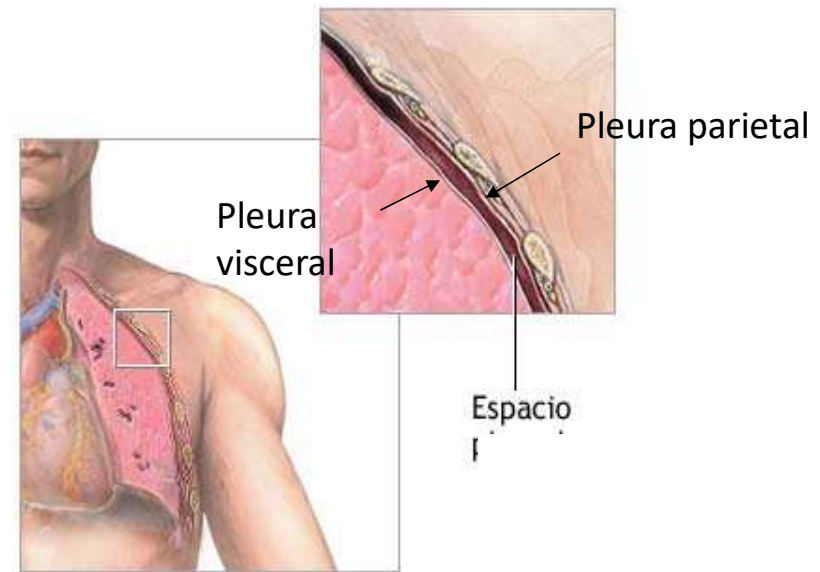
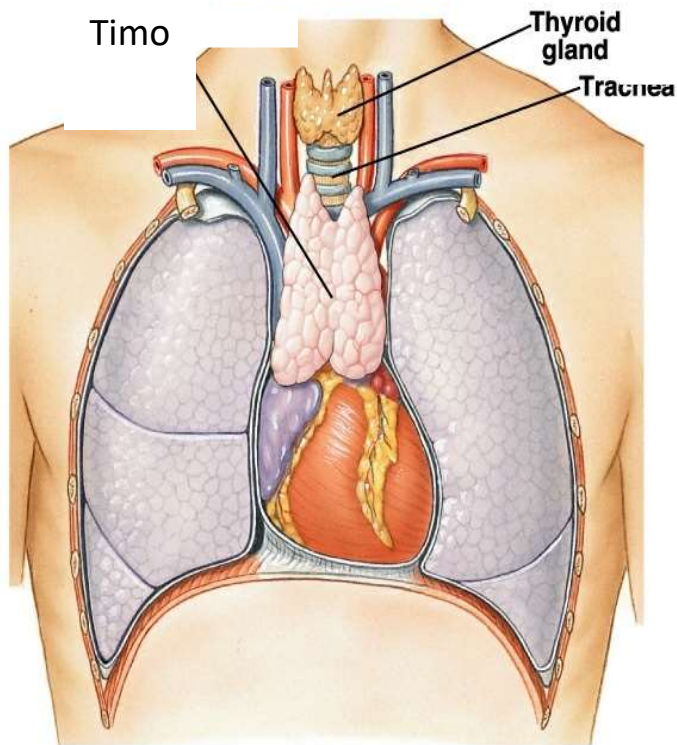
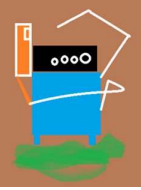


Las principales indicaciones de La Ventilación Mecánica son

Disminuir el trabajo Respiratorio del paciente

Mejorar el intercambio gaseoso a nivel pulmonar

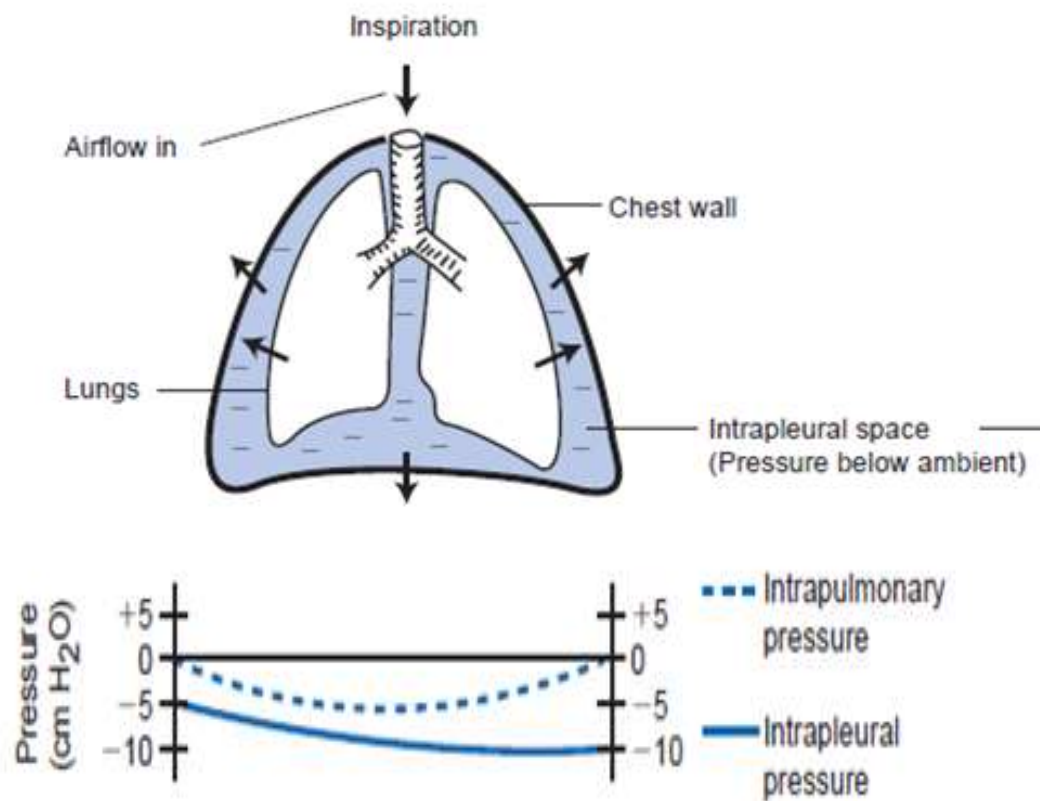
Cavidad torácica y pleuras



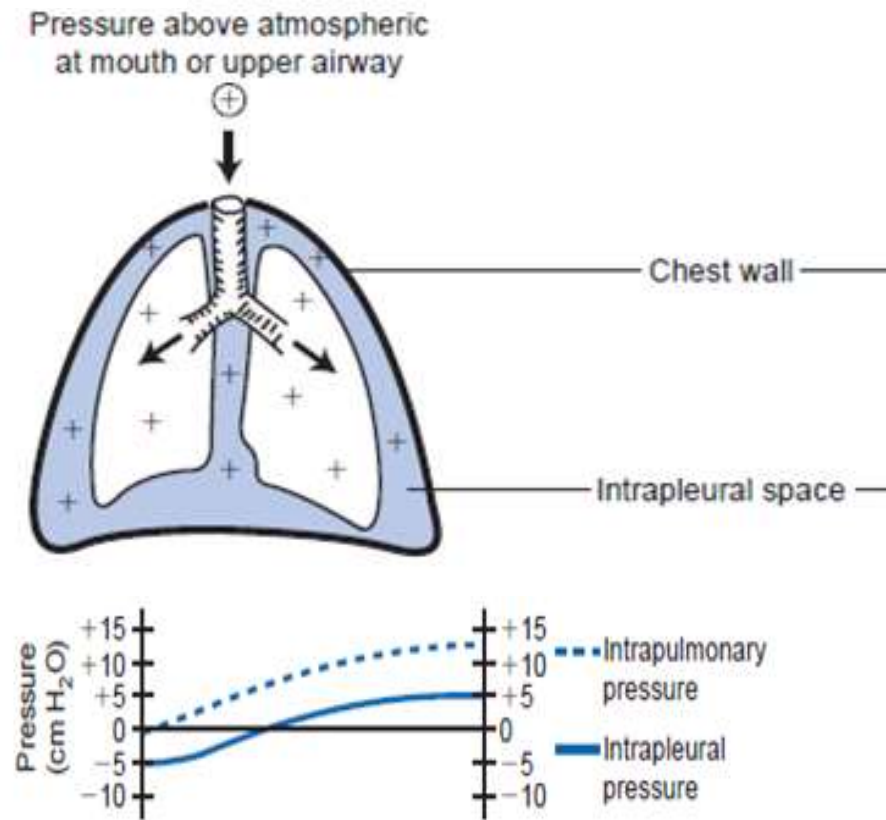
ADAM.

Fase Inspiratoria

Esponanea

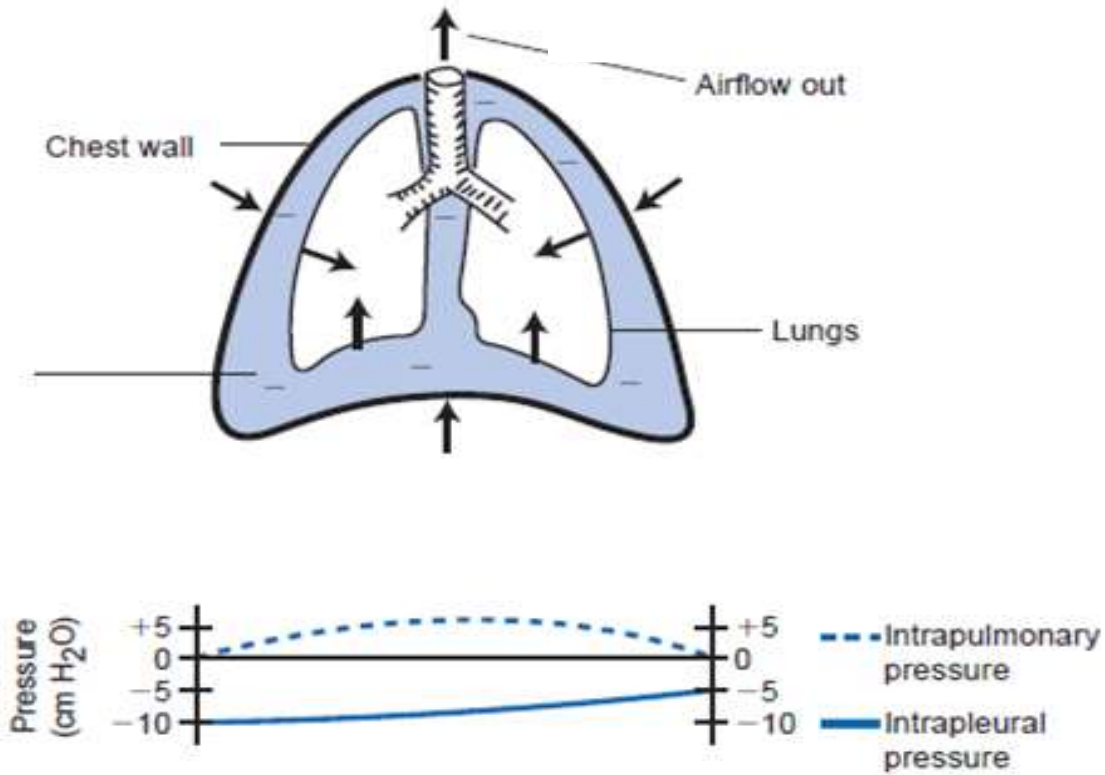


V. Mecánica

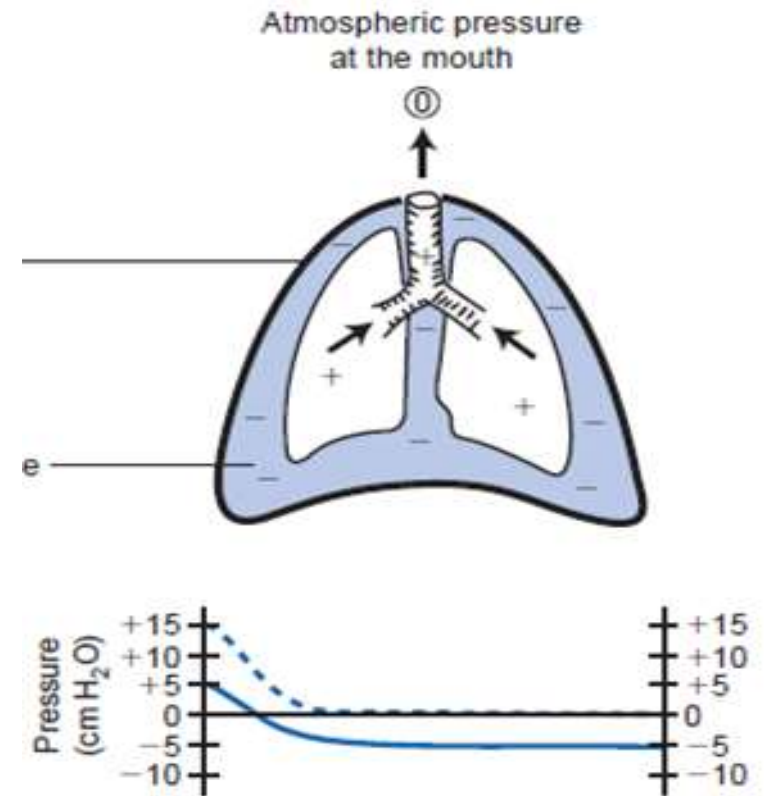


Fase Espiratoria

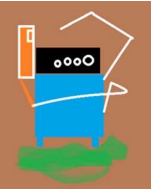
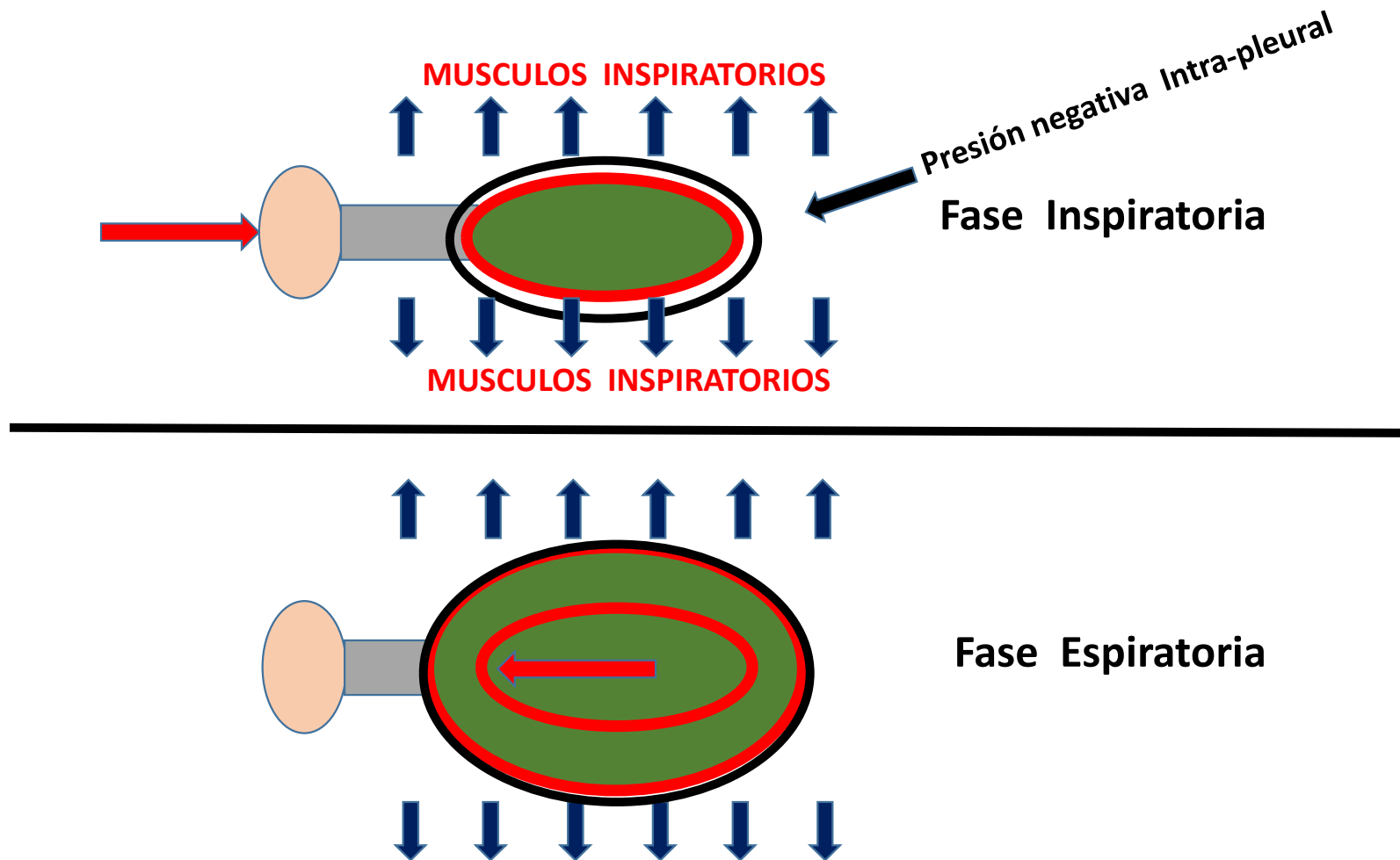
Espontanea



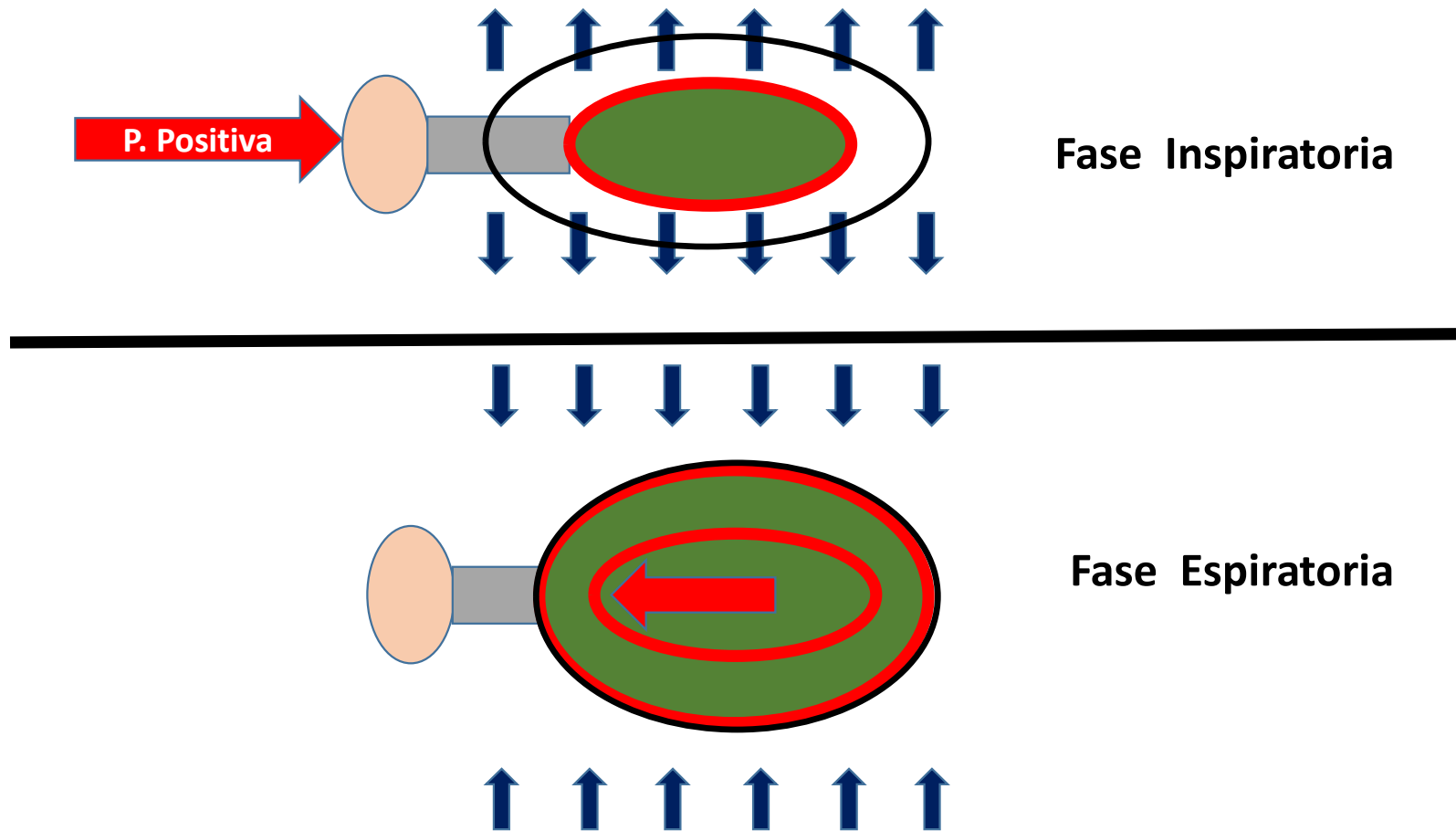
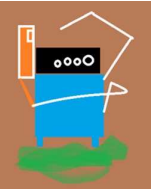
V. Mecánica

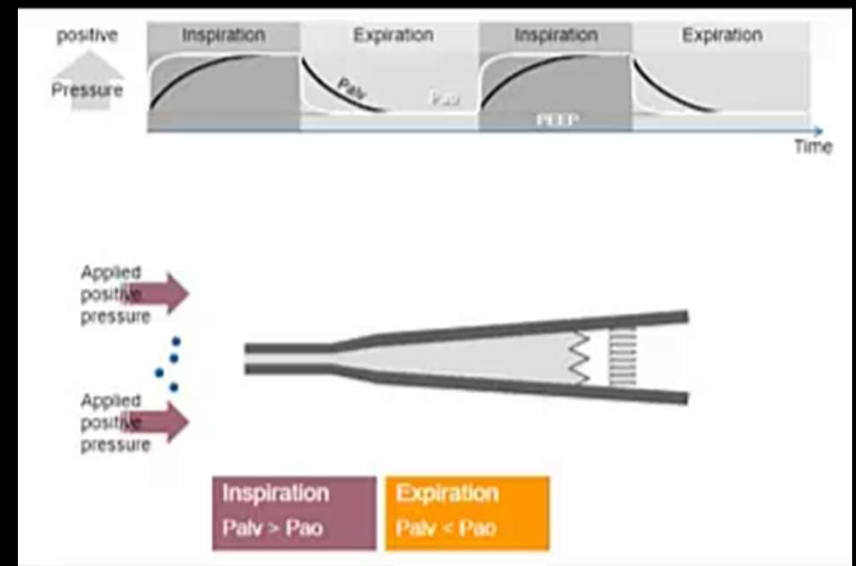
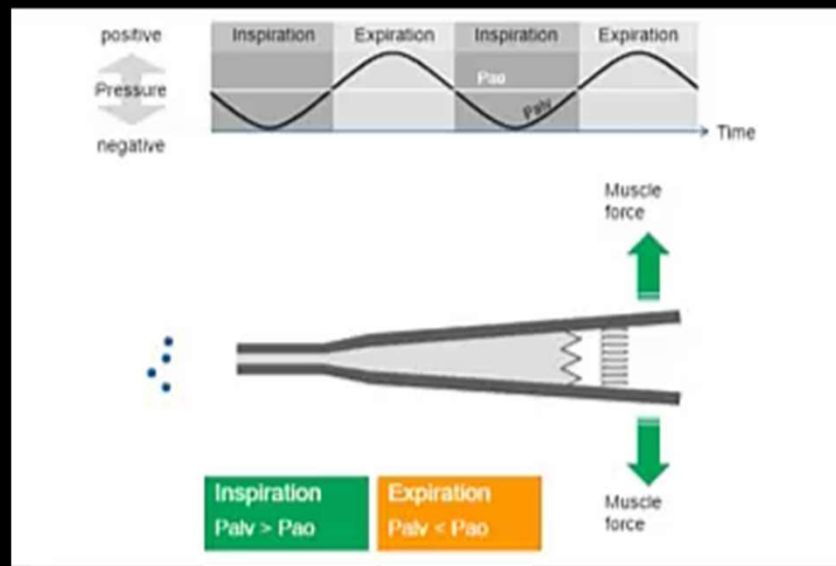
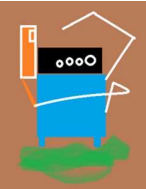


Ventilación espontánea



Ventilación Mecánica a presión positiva intermitente





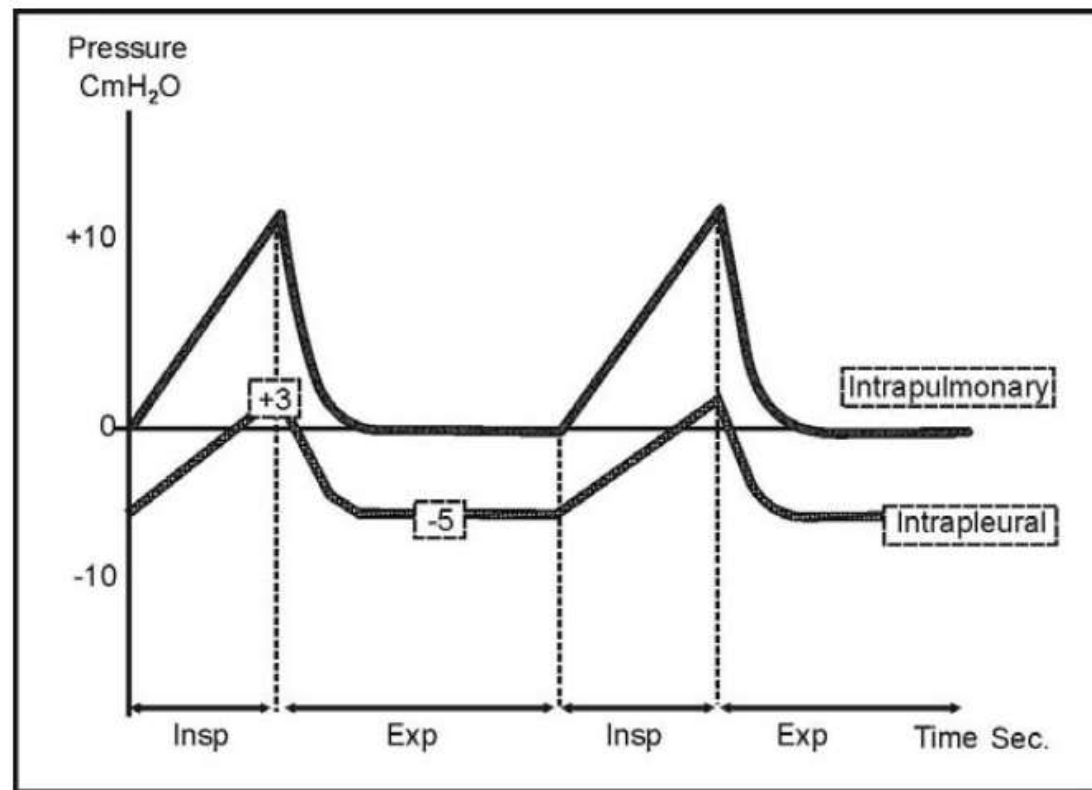
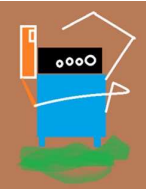


Figure 12.3: Intrapulmonary and intrapleural pressure during controlled ventilation

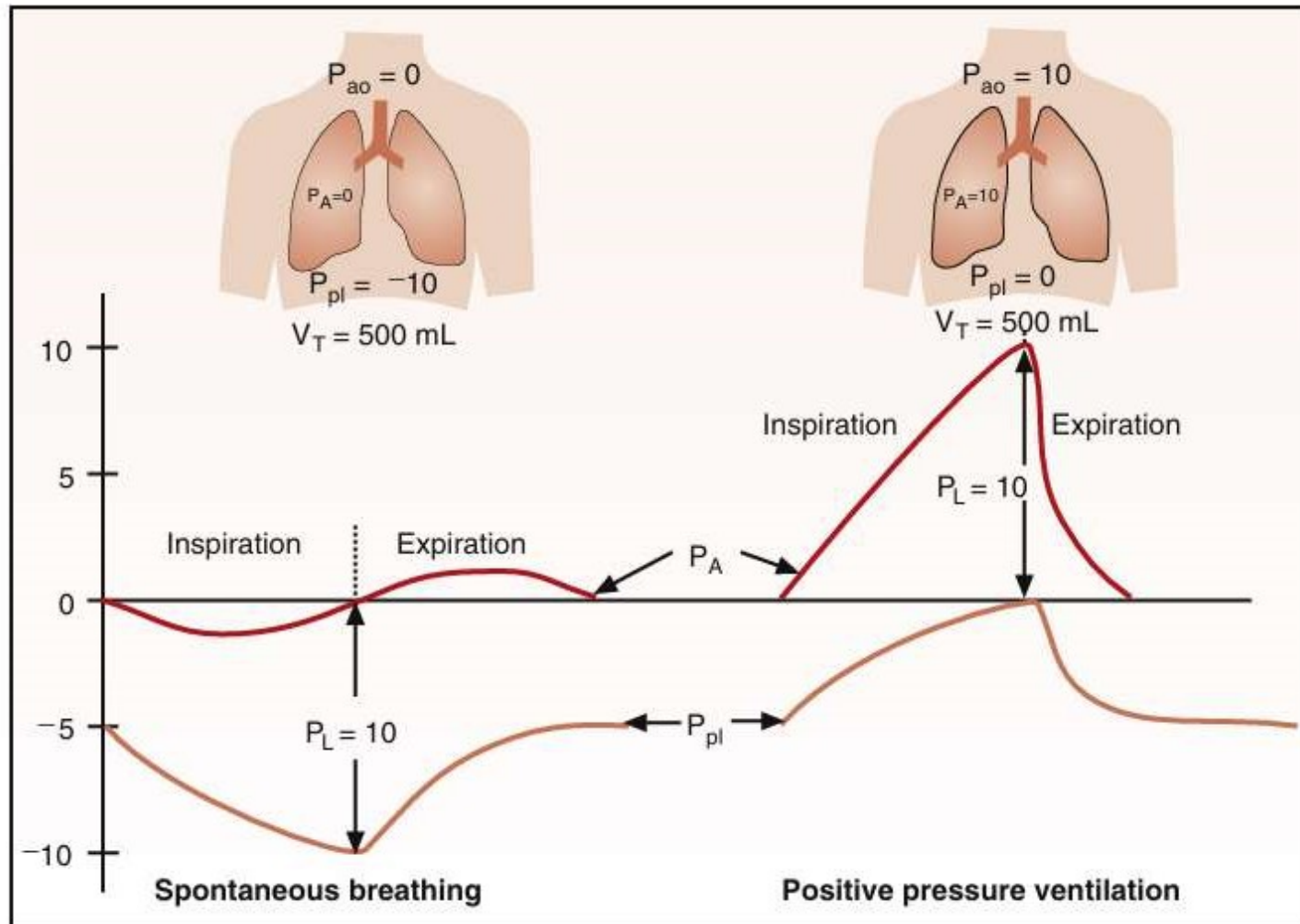
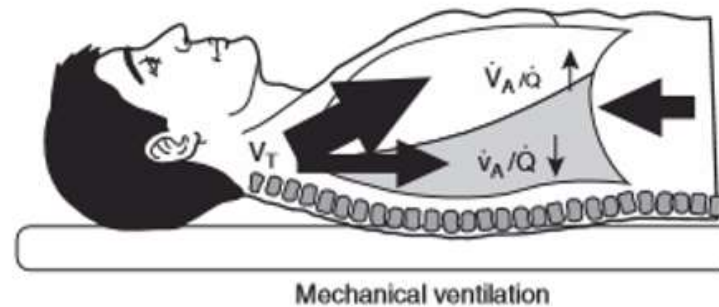
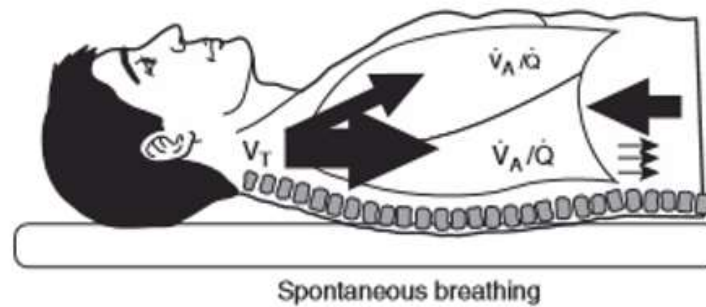
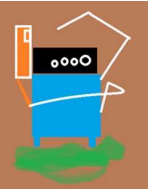
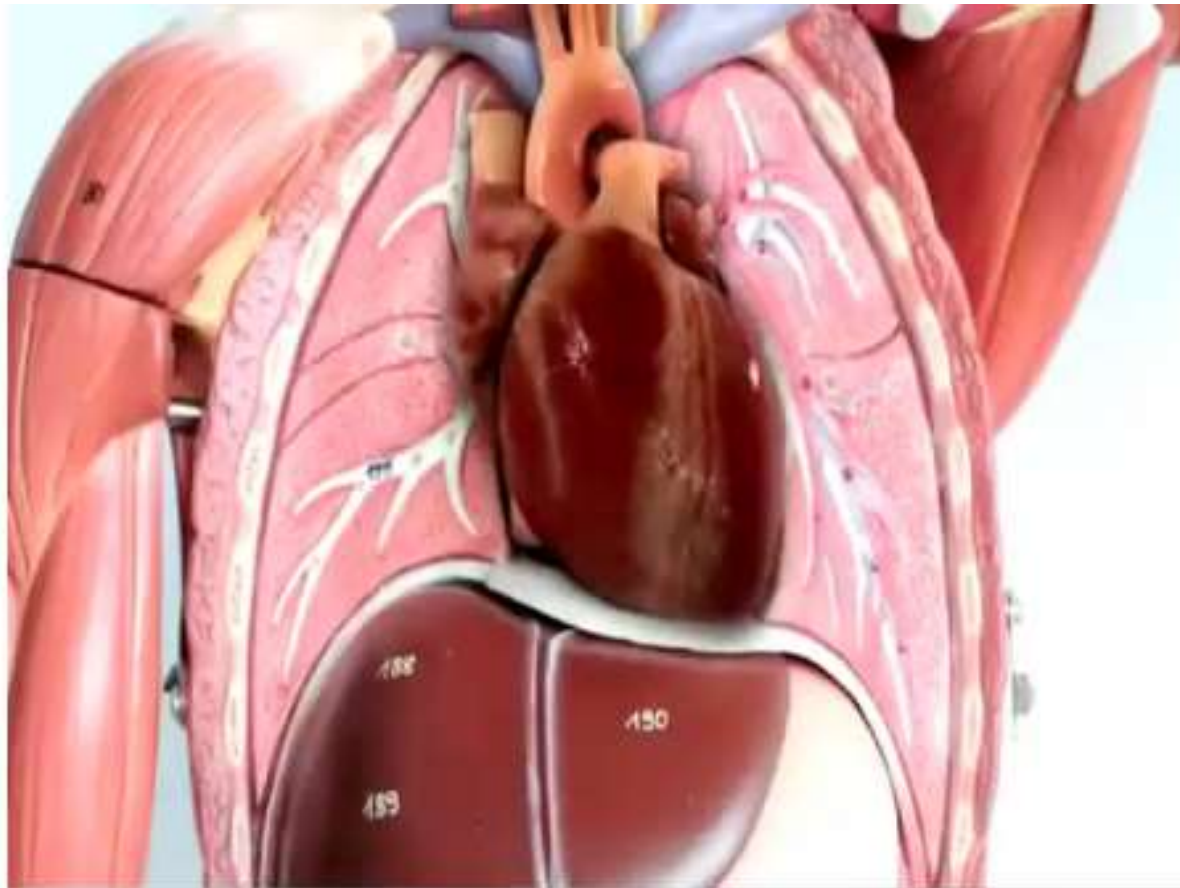
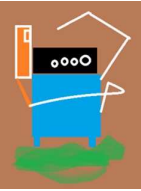


Figure 3-4 Airway and intrapleural pressure changes during spontaneous and positive pressure mechanical ventilation. Tidal volumes (V_T) are identical in both instances because the distending transpulmonary pressures (P_L) are equal. P_{ao} , Pressure at the airway opening; P_A , alveolar pressure; P_{pl} , intrapleural pressure.

La distribución de la Ventilación pulmonar.-





Cambios Cardiovasculares.-

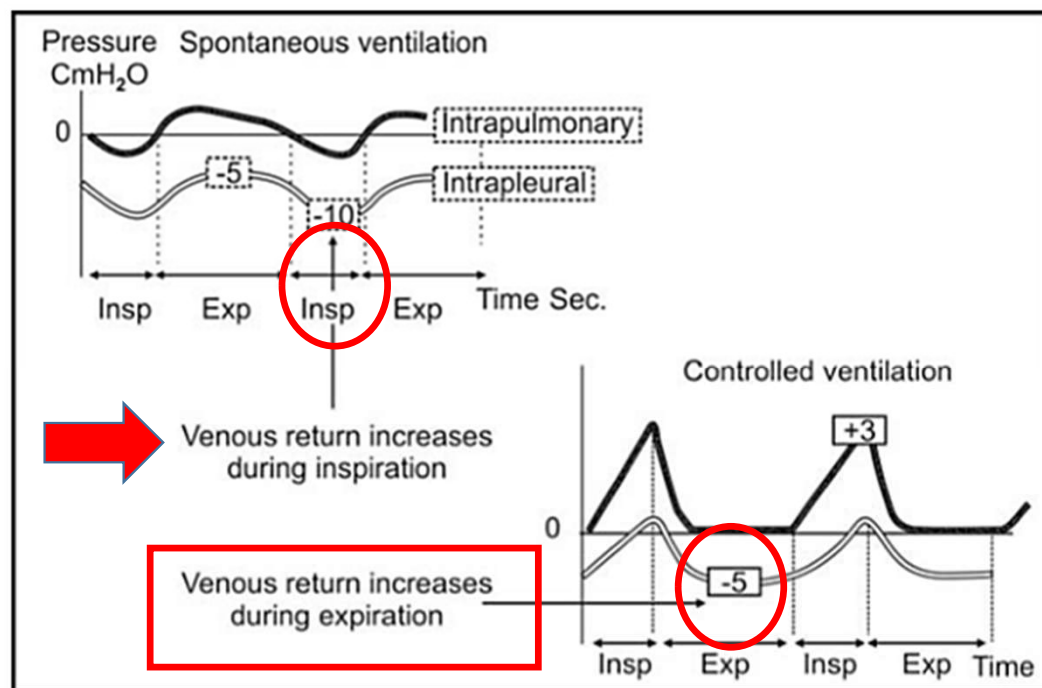
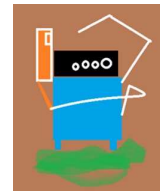


Figure 13.2: Effects of intrapleural pressure on venous return

Efecto de la VM sobre el retorno venoso izquierdo

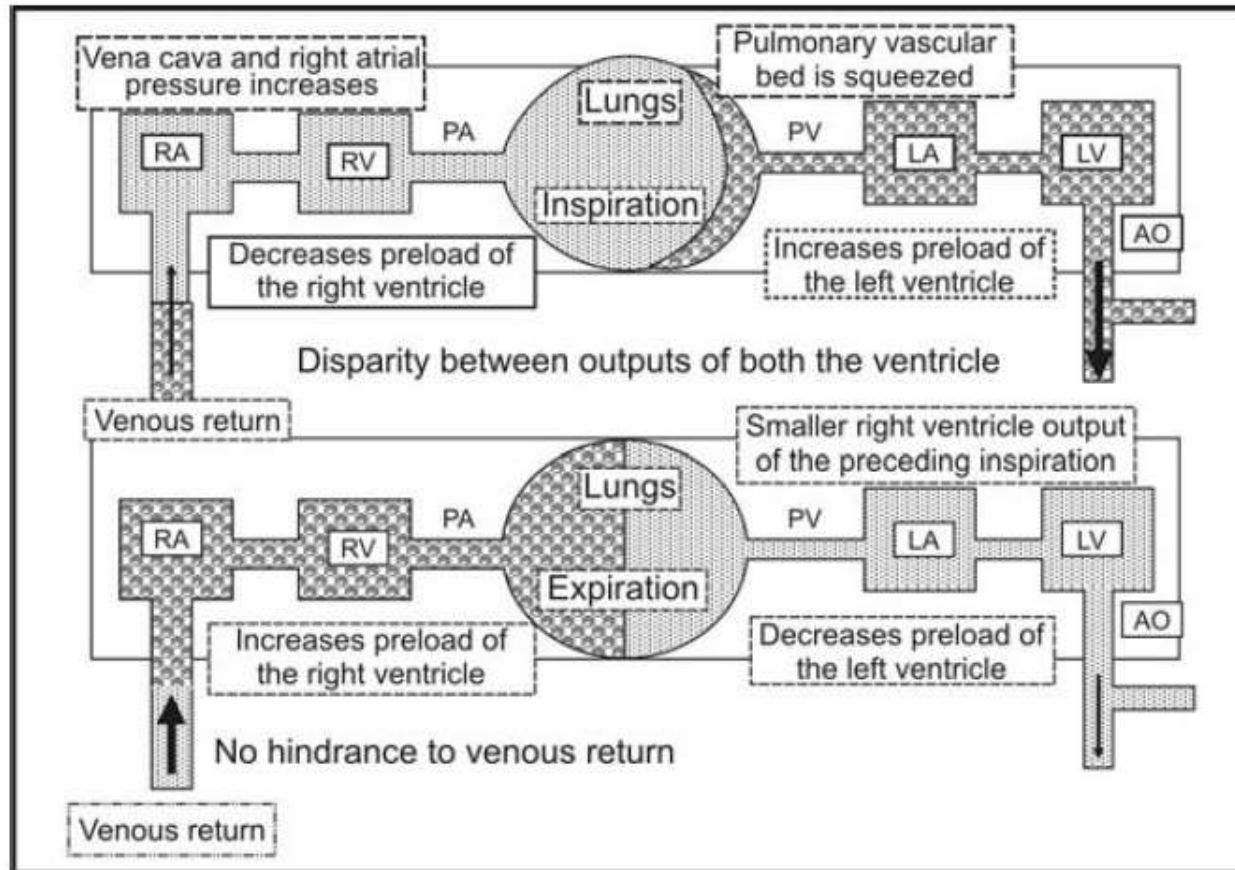


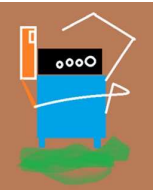
Figure 13.4: Circulation showing the effects of positive pressure breath on the preloads of the right and left ventricle (For colour version see Plate 6)



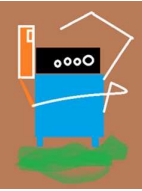
Inspiración



Espiración



Efecto de la VM sobre el retorno venoso izquierdo



62 Section I. General Aspects of Ventilatory Support

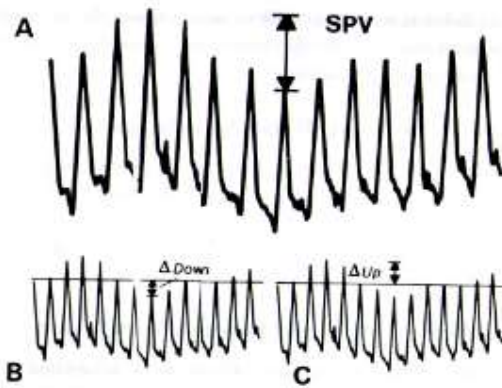
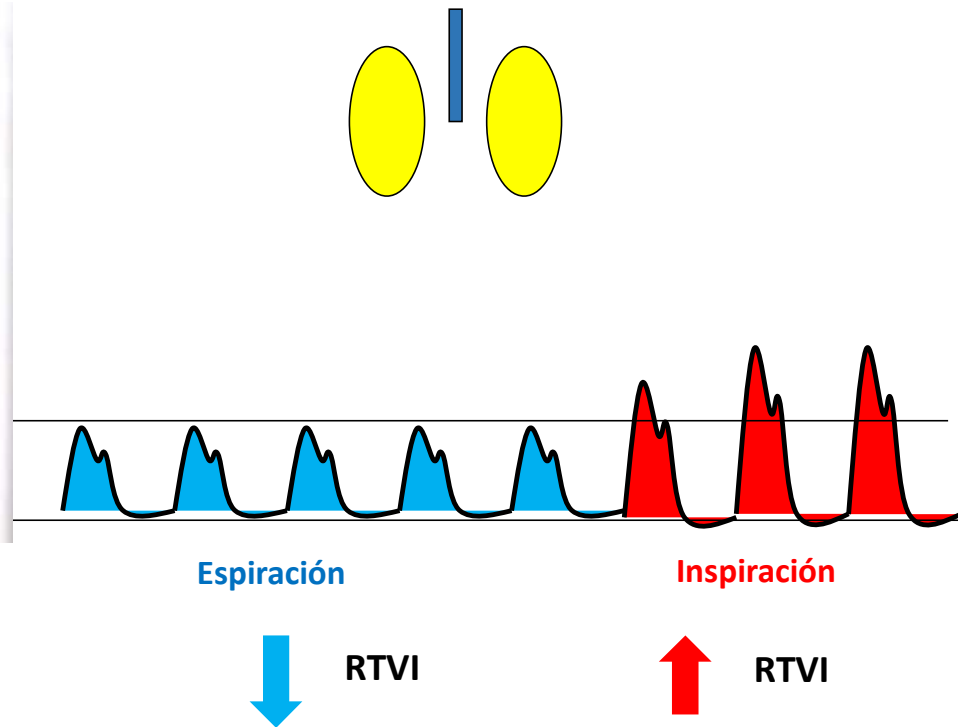
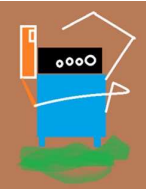
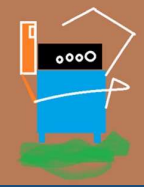


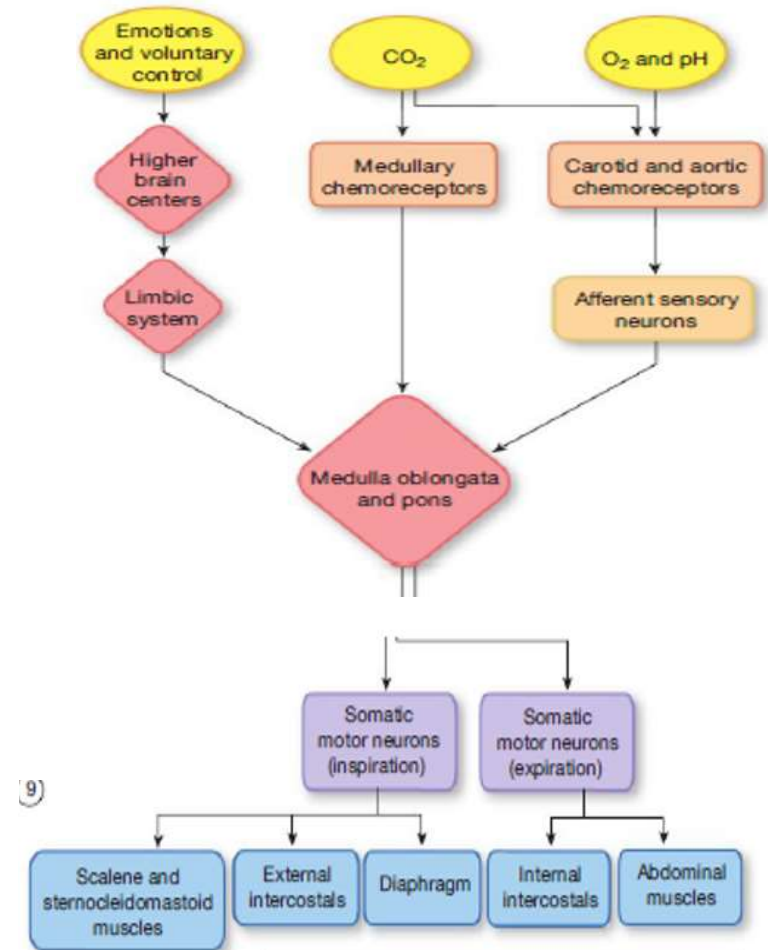
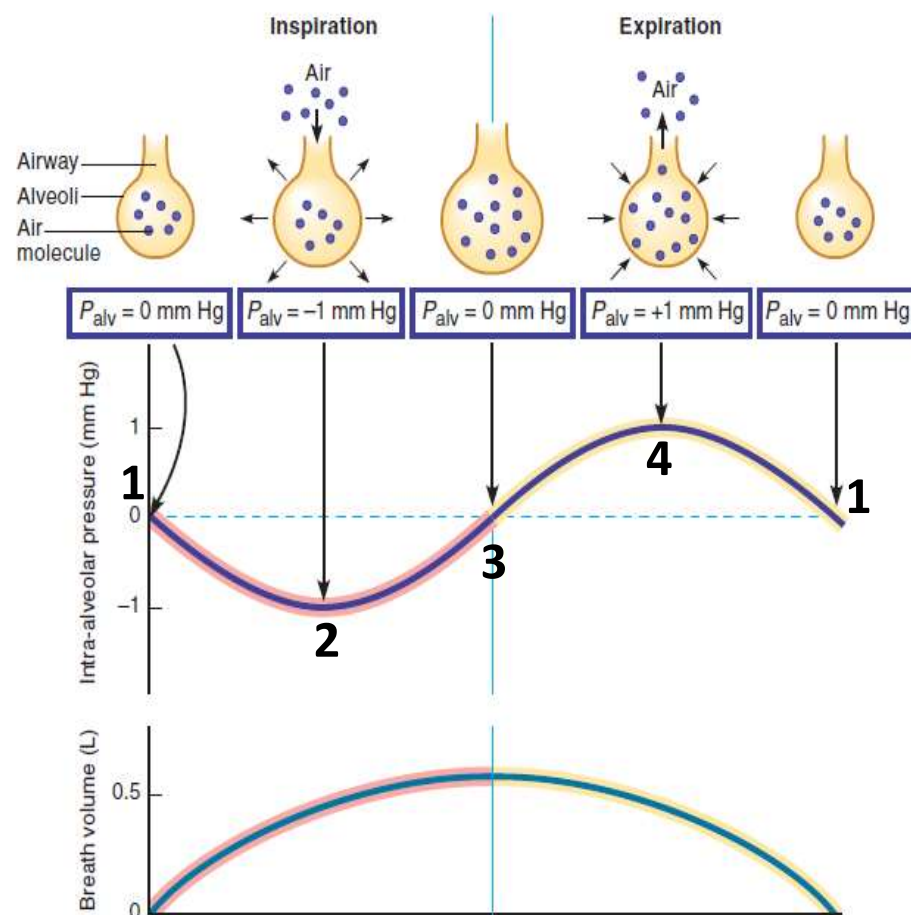
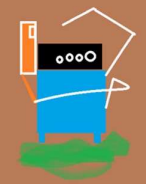
Figure 5.4. The systolic pressure variation (SPV) is the difference between the maximal and minimal values of the systolic pressure during one mechanical breath. It is composed of the Δ_{up} and Δ_{down} , which are the respective increase and decrease in systolic pressure relative to its value during a short apnea.

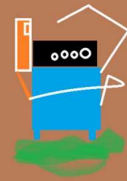






Las cuatro fases del ciclo ventilatorio espontaneo





Equilibrio Acido-Base

Gasometria

PH: 7.35 – 7.45

PCO₂: 35 – 45 mmHg

PaO₂: > 60 mmHg

HCO₃ : 22-26 meq L

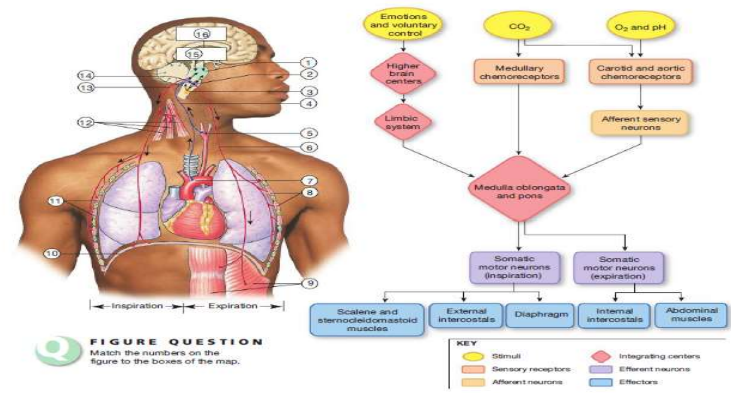
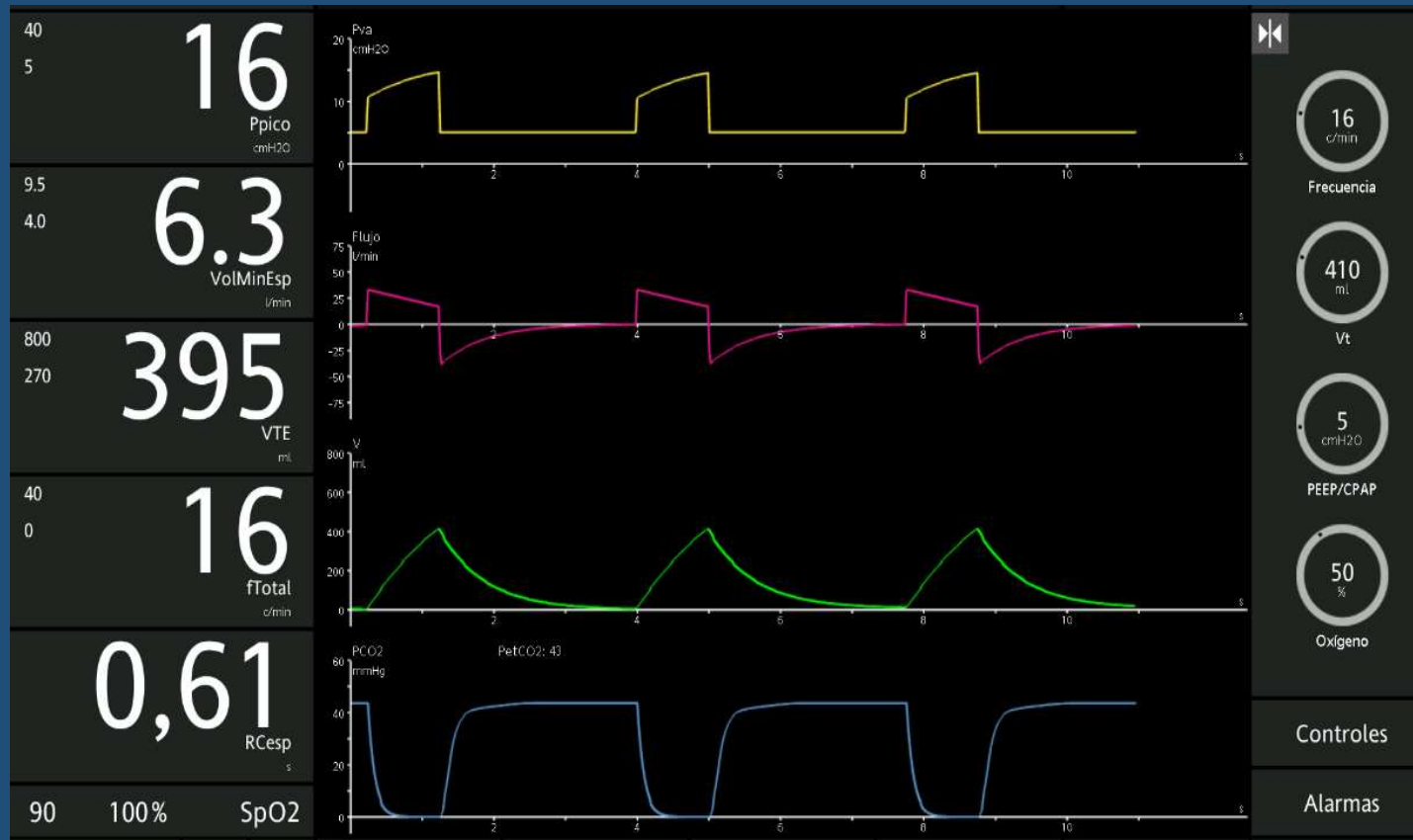
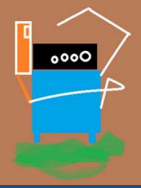


FIGURE 18-16 The reflex control of ventilation. Chemoreceptors monitor blood gases and pH. Control networks in the brain stem regulate activity in somatic motor neurons leading to respiratory muscles.

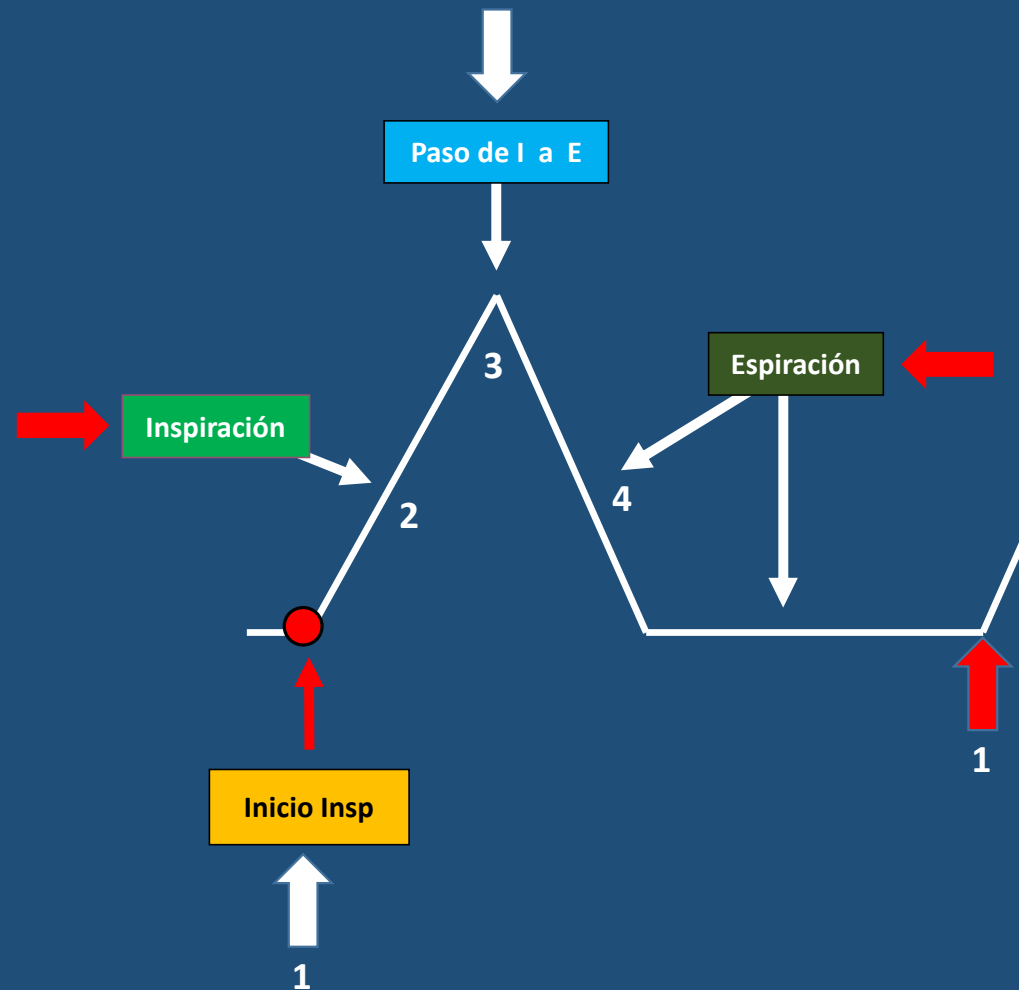
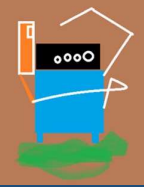




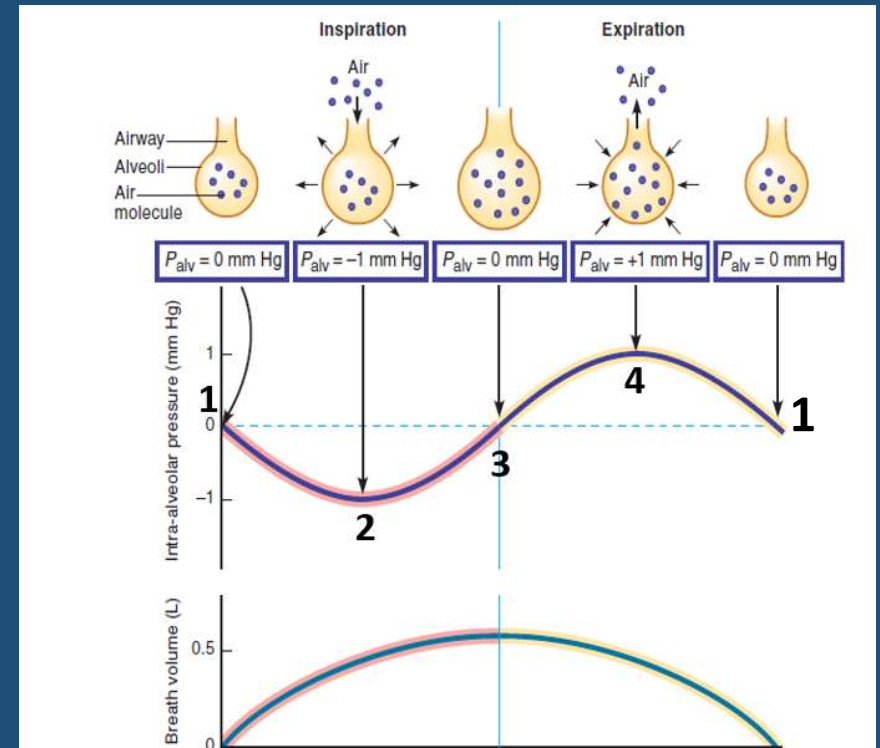
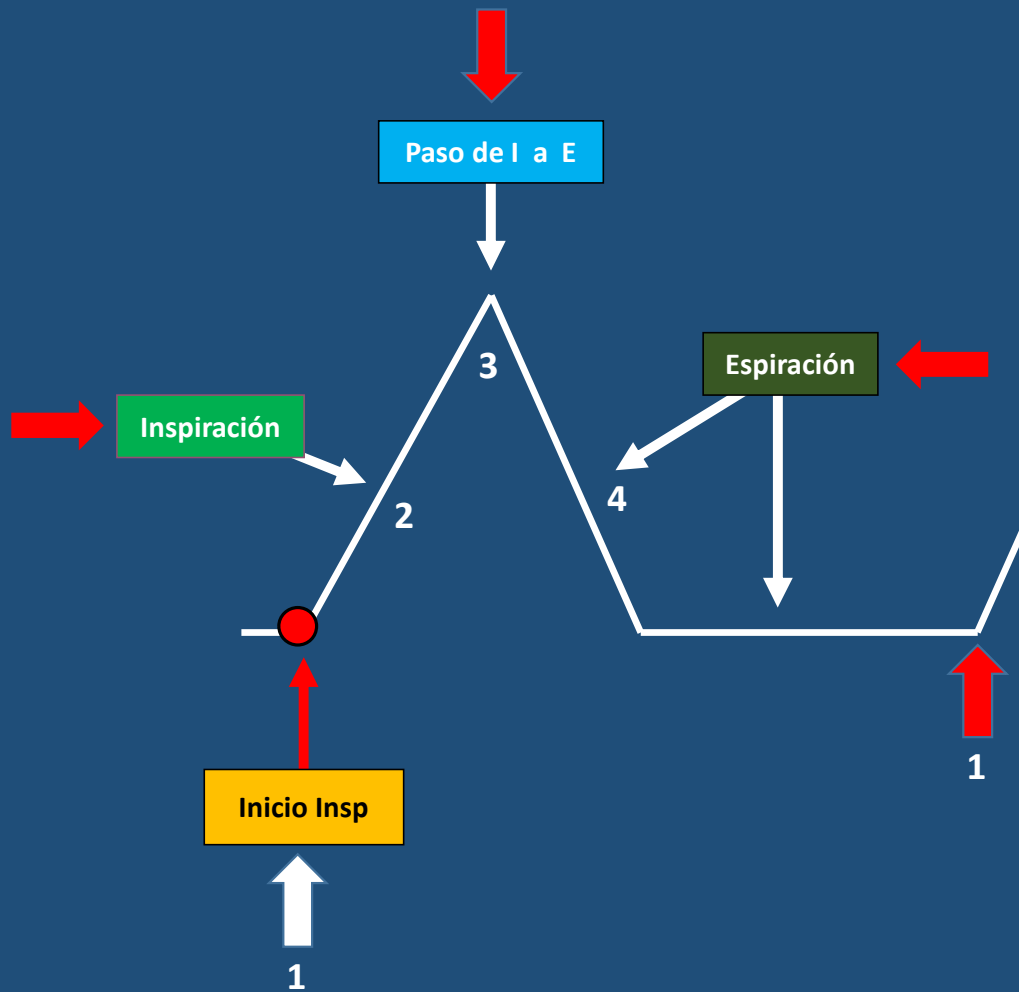
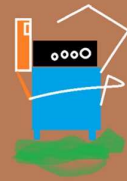
CAPNOGRAFÍA

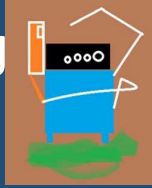


Las **cuatro fases** del ciclo ventilatorio mecánico



Las cuatro fases de ambos ciclos ventilatorios





Fin de la presentación

