

Cardiopulmonary model (CP Model)

قلب ریوی

central Nervous sys. (CNS) : C_{vO_2} , C_{vCO_2} وریدی سیاهرگی
gas concentration in the venous Blood

$O_2, CO_2 \rightarrow$ arterial blood pressures $\leftarrow P_{aCO_2}, P_{aO_2}$

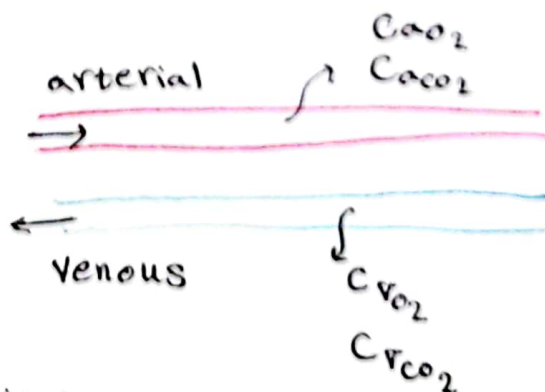
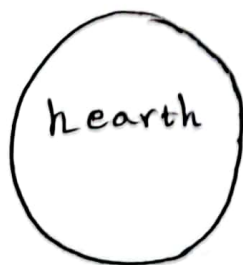
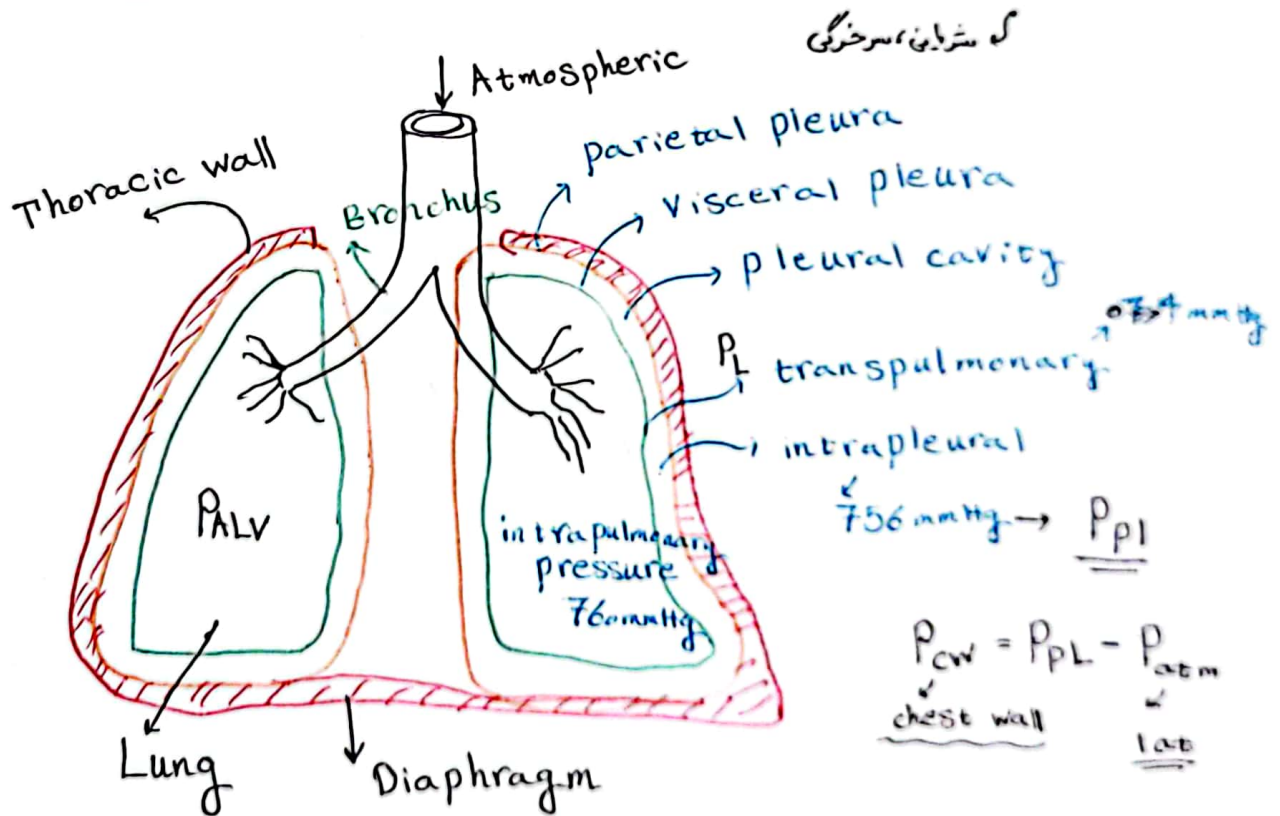
ABP \rightarrow arterial blood pressure مان فشارخون

P_{pl} : intrapleural pressure پلورال

2 Parameters

P_{mus} : respiratory muscle pressure

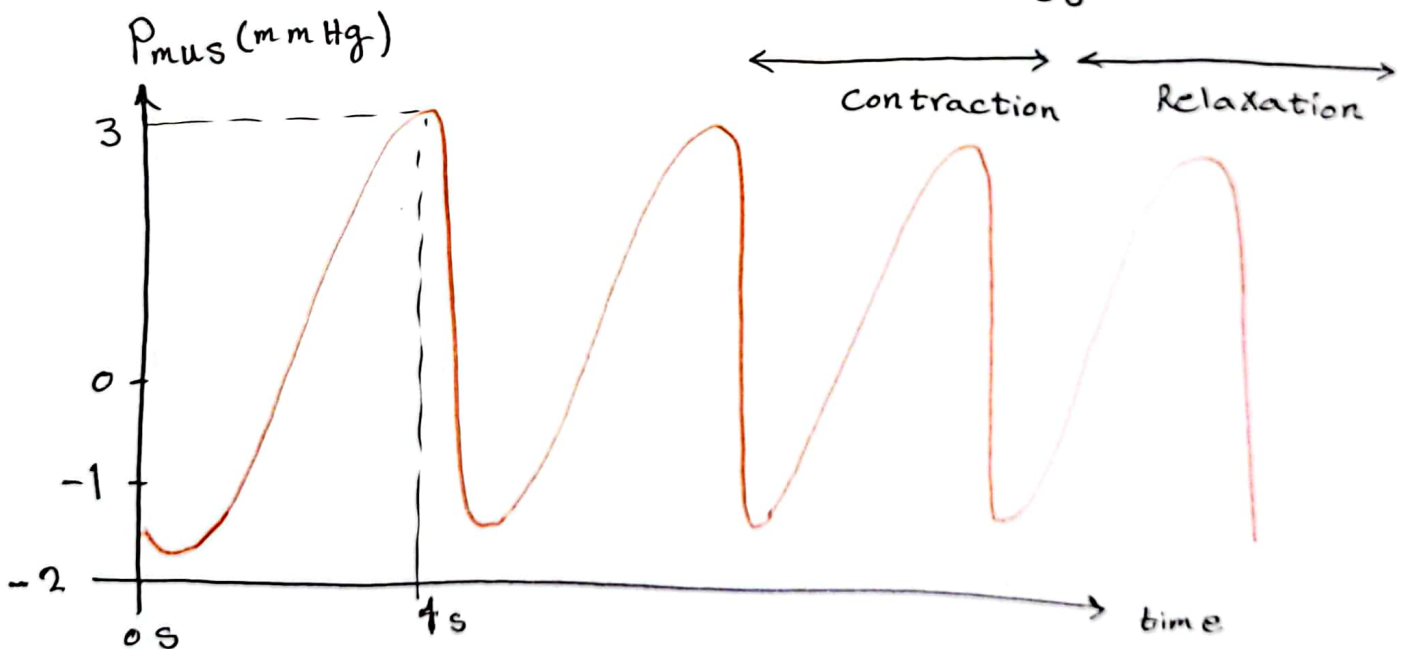
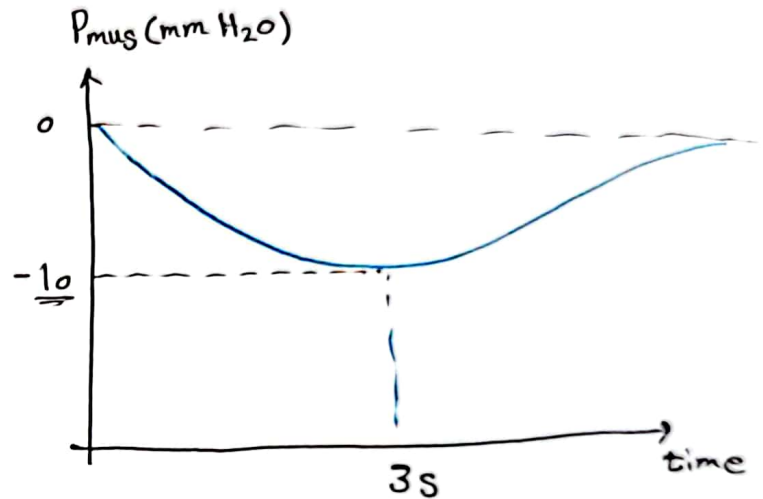
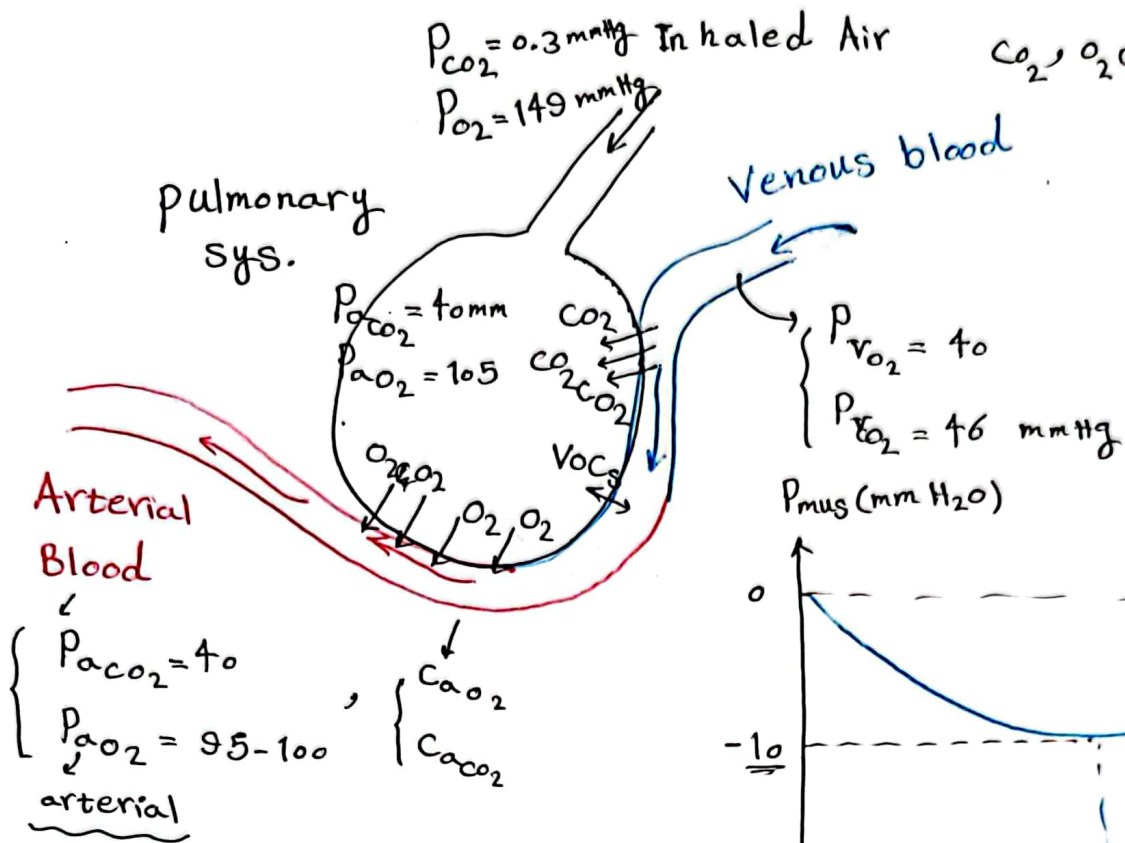
$CaO_2, CaCO_2$ \rightarrow gas concentrations in the arterial blood

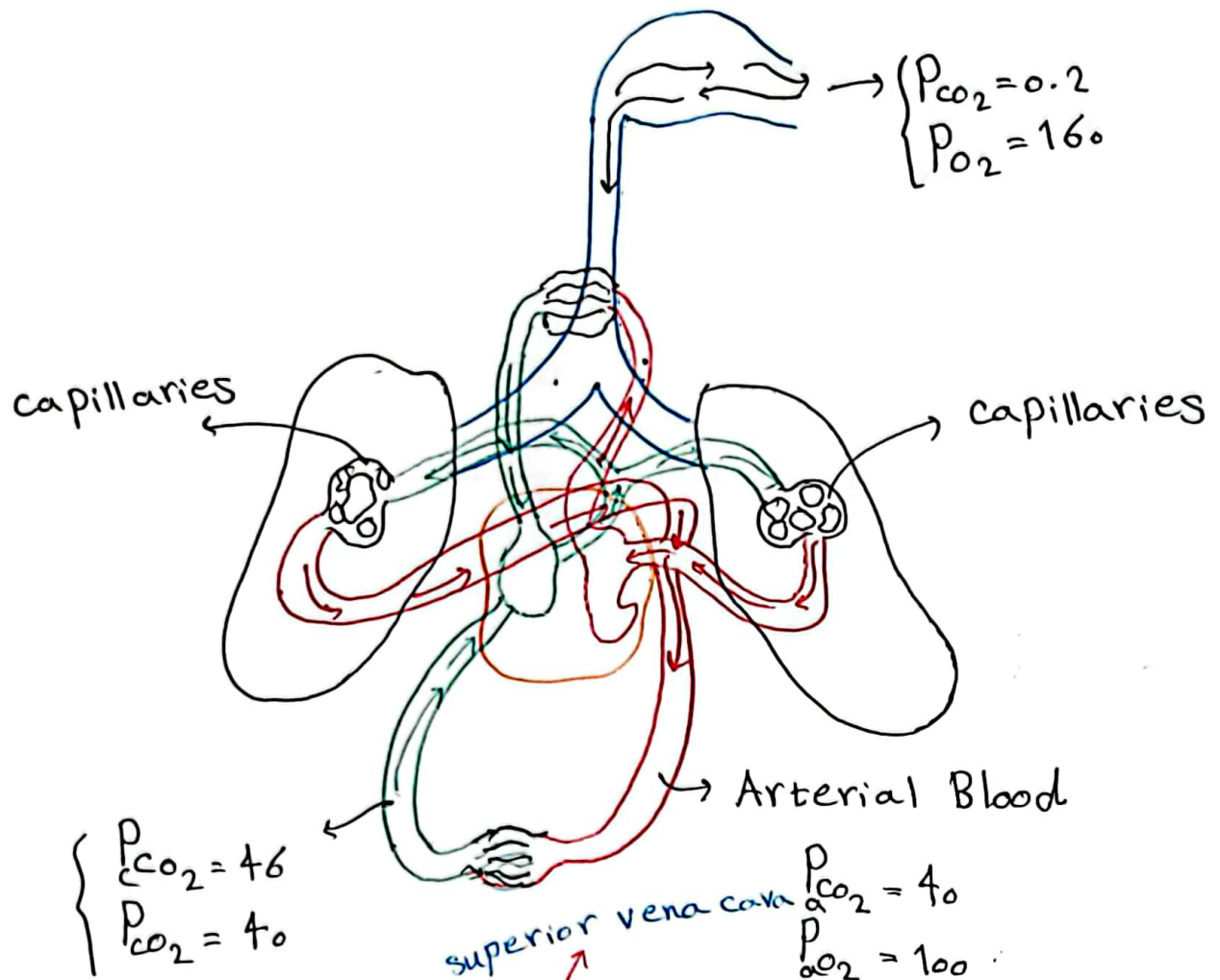


P_{Alv} : alveolar pressure

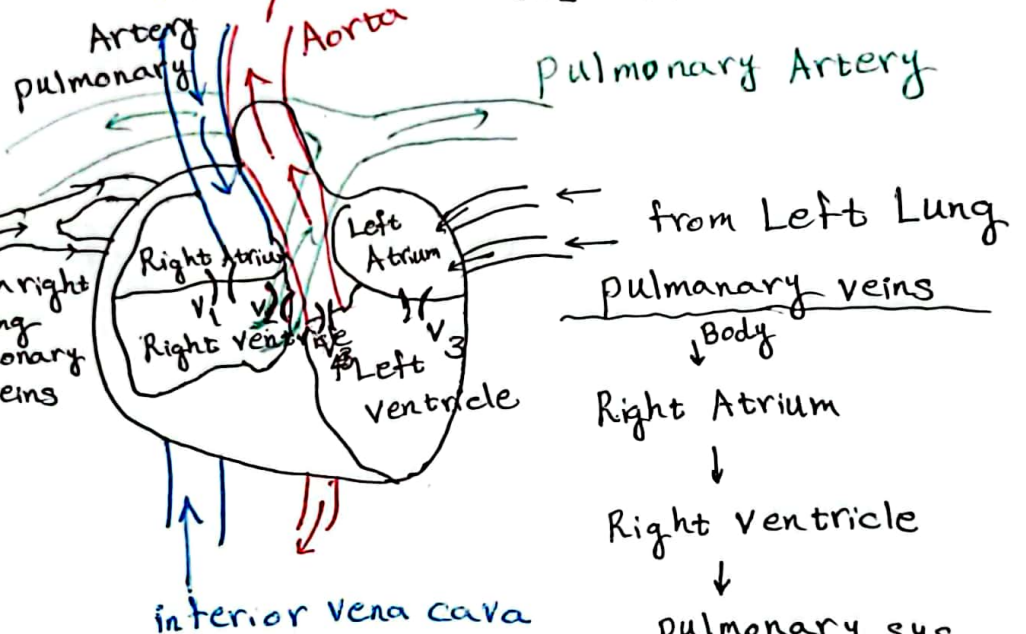
P_{cw} = chest wall elastic recoil pressure عقب نشینی

alveoli: معزّه های کوچک ریّه ها
 برای exchange گازهای O_2 و CO_2





- V_1 : tricuspid valve
 - V_2 : pulmonary valve
 - V_3 : Mitral valve
 - V_4 : Aortic valve
- from right Lung pulmonary Veins



Atrium: دهليز
ventricle: بطن

p: pressure

Q: Blood Flow

MV: mitral Valve

AV: aortic Valve

TV: tricuspid valve

PV: pulmonary Valve

La: Left Atrium

Lv: Left Ventricle

Lv.o: Left Ventricle output

Sa: systemic arteries

SP: splanchnic peripheral compartment

SV: splanchnic veins

ep: extrasplanchnic peripheral compartment

EV: extraplanchnic veins

mp: skeletal muscle peripheral compartment

mV: skeletal muscle peripheral compartment

bp: brain peripheral com—

bV: brain veins

hp: coronary peripheral com—

hV: coronary veins

tv: thoracic veins

ra: right atrium

rv: right ventricle

rVo: right Ventricle output

pa: pulmonary artery

pp: pulmonary peripheral circulation

ps: pulmonary shunt

PV: pulmonary veins

pl: pleural space