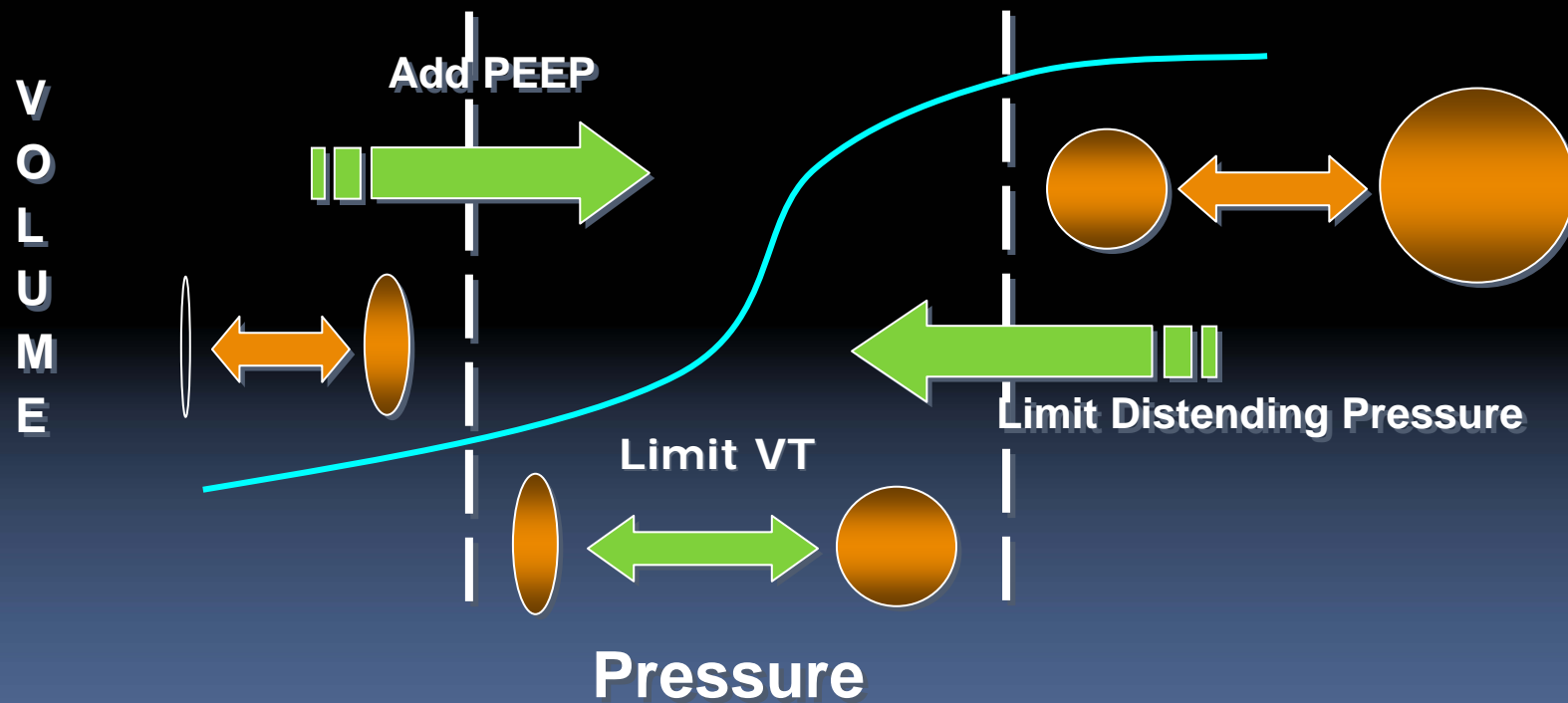


Preventing overdistension and Under-recruitment Injury

“Lung Protective” Ventilation



The aim of the open lung concept

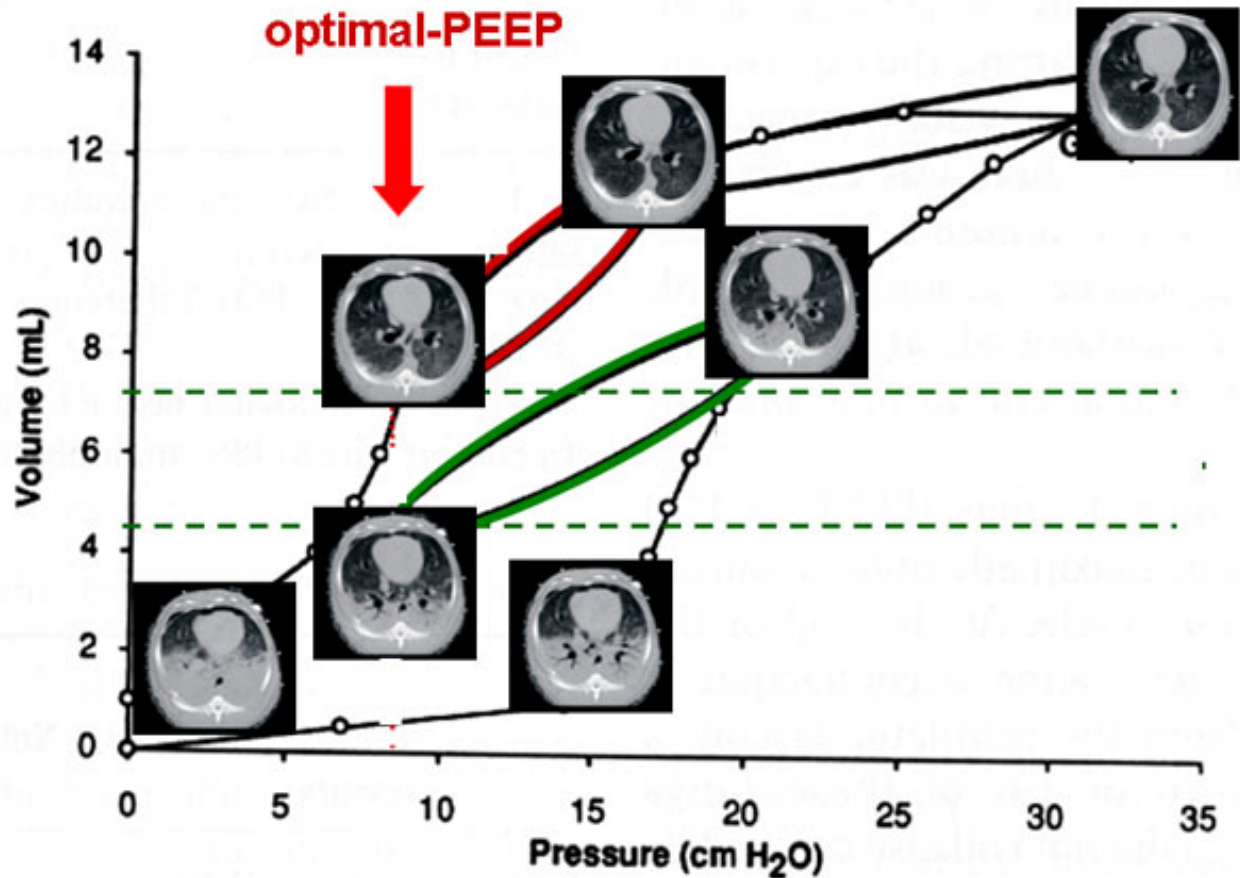
- To recruit all recruitable alveoli during the opening procedure
- To continue keeping all the recruitable alveoli open
- To maintain adequate gas exchange while minimizing VILI

Pinhu L et al Lancet 2003;361:332

Ware LB et al N Engl J Med 2000;342:1334

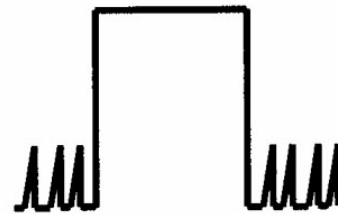
The concept of PEEP and Recruitment

Pelosi P et al. Am J Respir Crit Care Med 2001; 164: 122-130



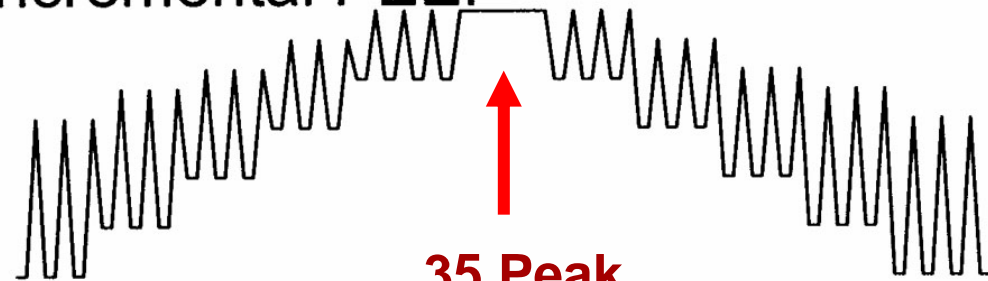
Three Types of Recruitment Maneuvers

Sustained Inflation



40 for 40 s

Incremental PEEP



35 Peak

Pressure Controlled Ventilation



45/15 and 1:2
for 120 s

0

1

2

3

4

5

Time (min)

Ventilator induced lung injury

Dreyfuss D , Saumon G , Am J Respir Crit Care Med 1998; 157:294-323



After 20 min
Low pressure MV
and ZEEP

After 20 min
High pressure MV
and PEEP

After 20 min
High pressure MV
and ZEEP