

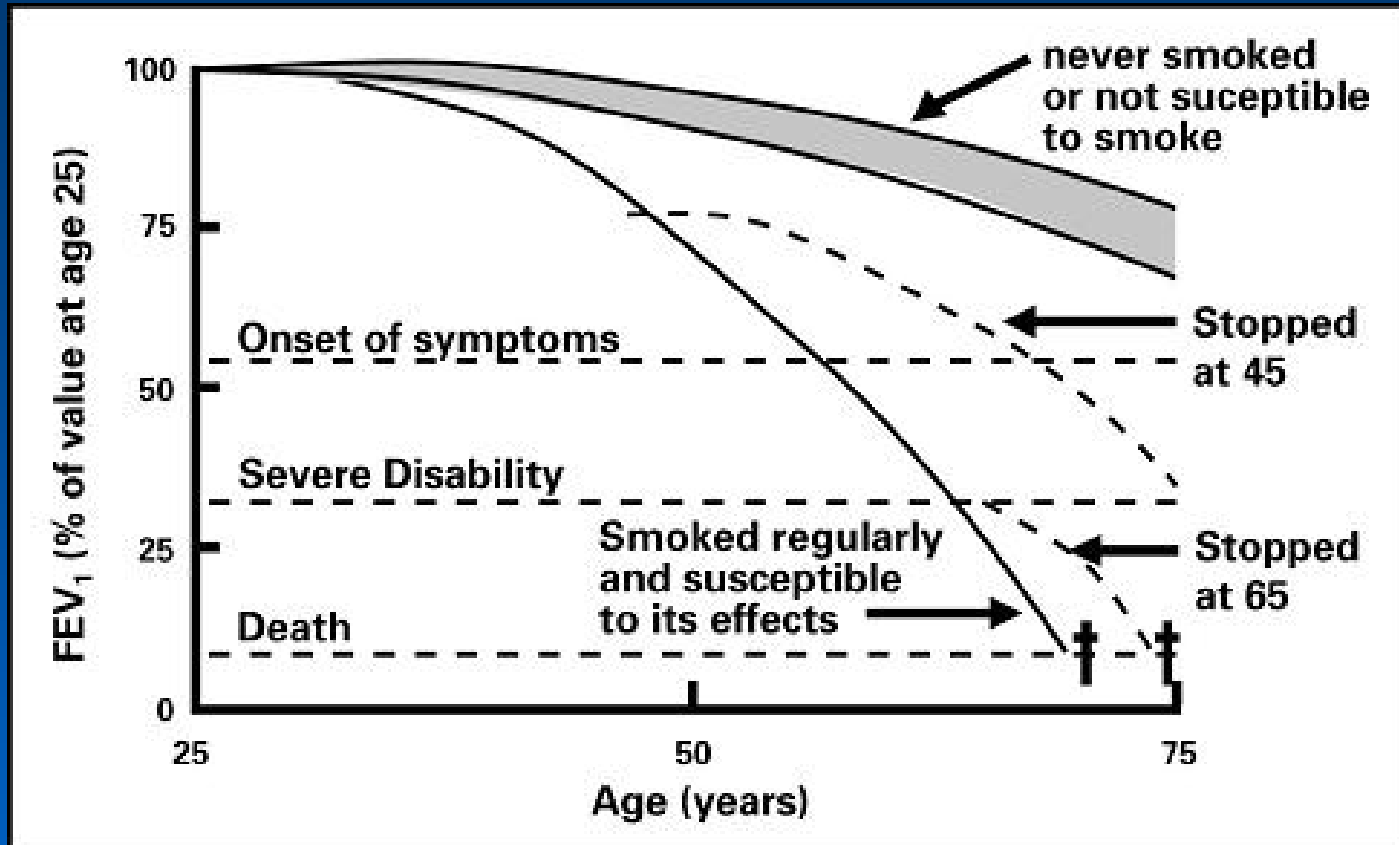


Simposio Intersocietario SIMREG-SIGG
BPCO NELL'ANZIANO: TRA DUBBI (MOLTI) E CERTEZZE (POCHE)

Fisiopatologia: oltre l'ostruzione ed il VEMS

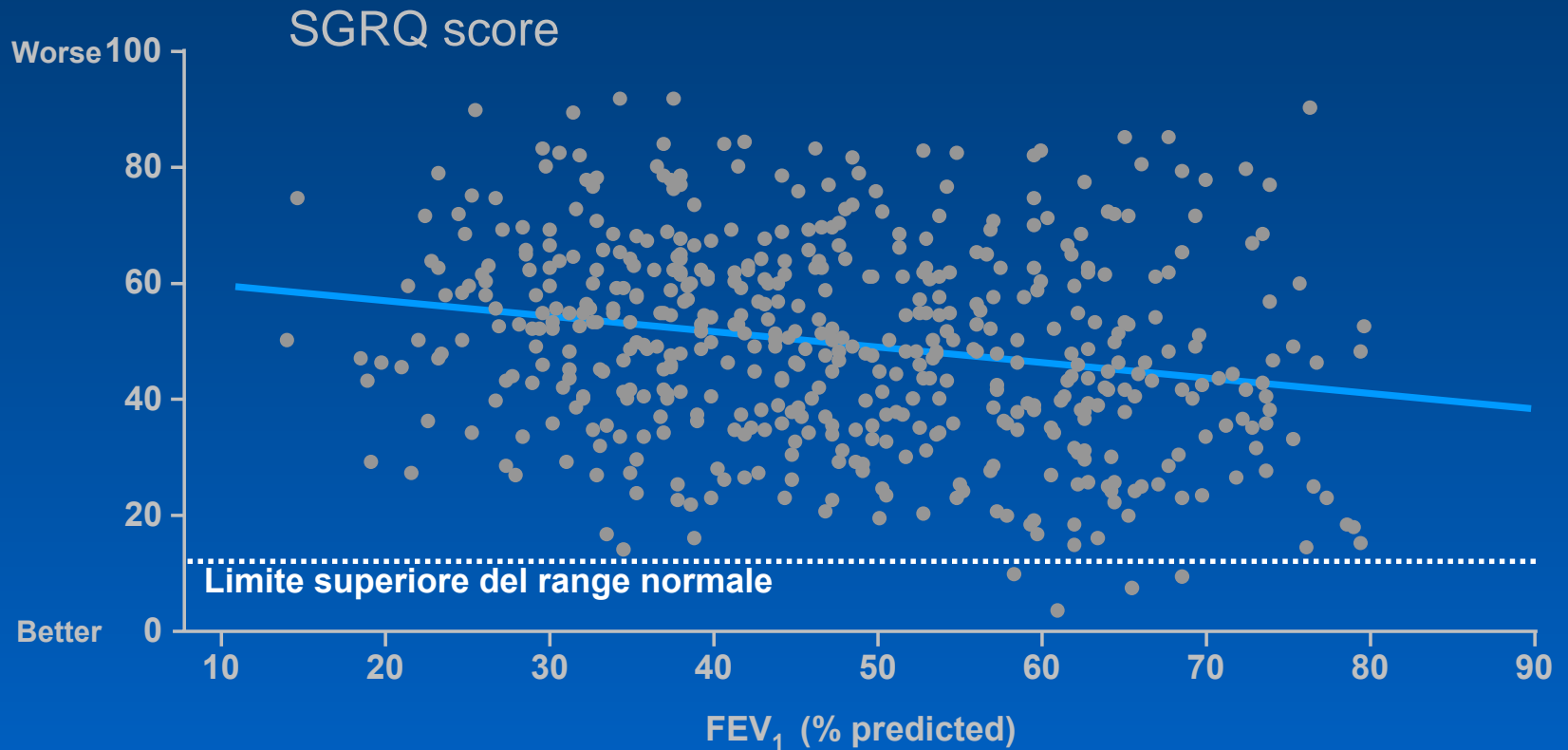
Vincenzo Bellia

BPCO e declino del VEMS/FEV₁



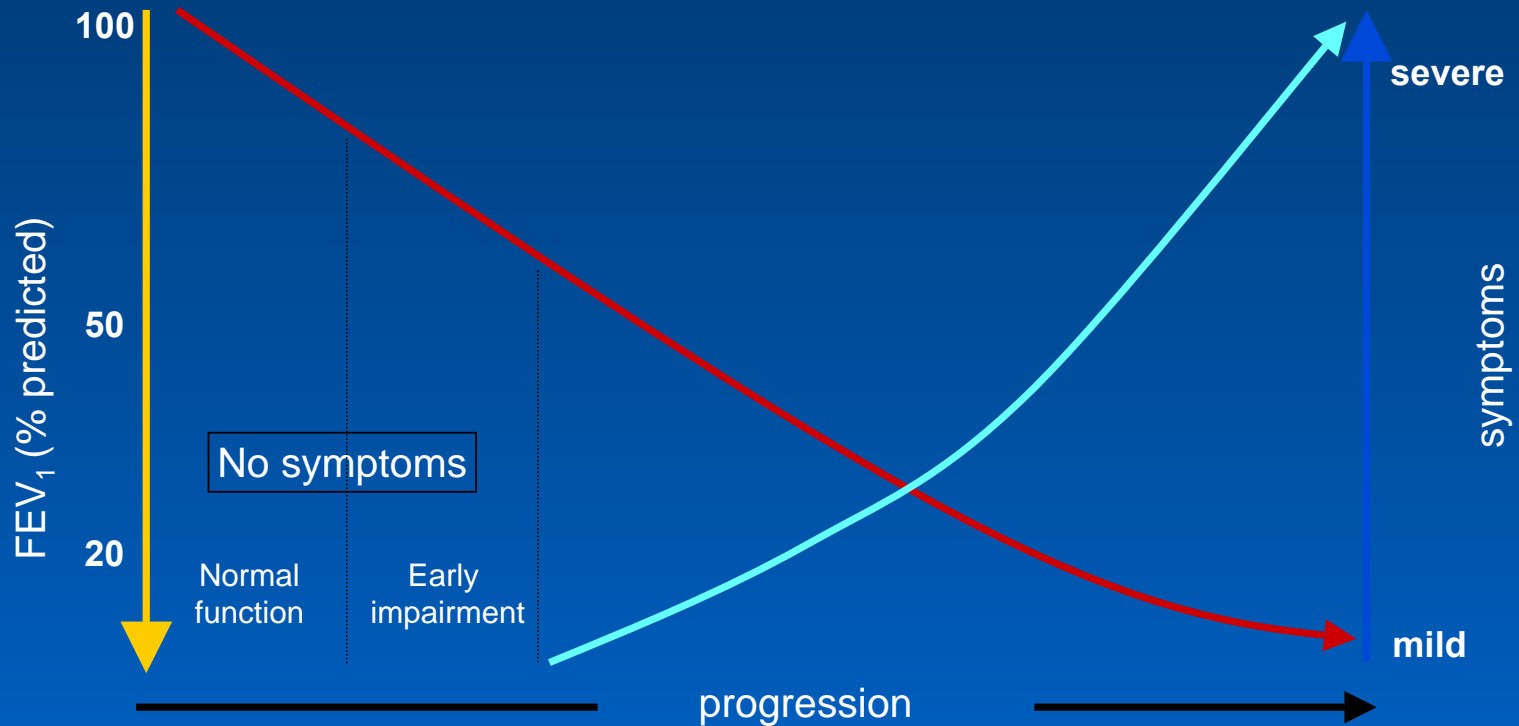
adattato da Fletcher C, Peto R. 1997

VEMS e qualità di vita



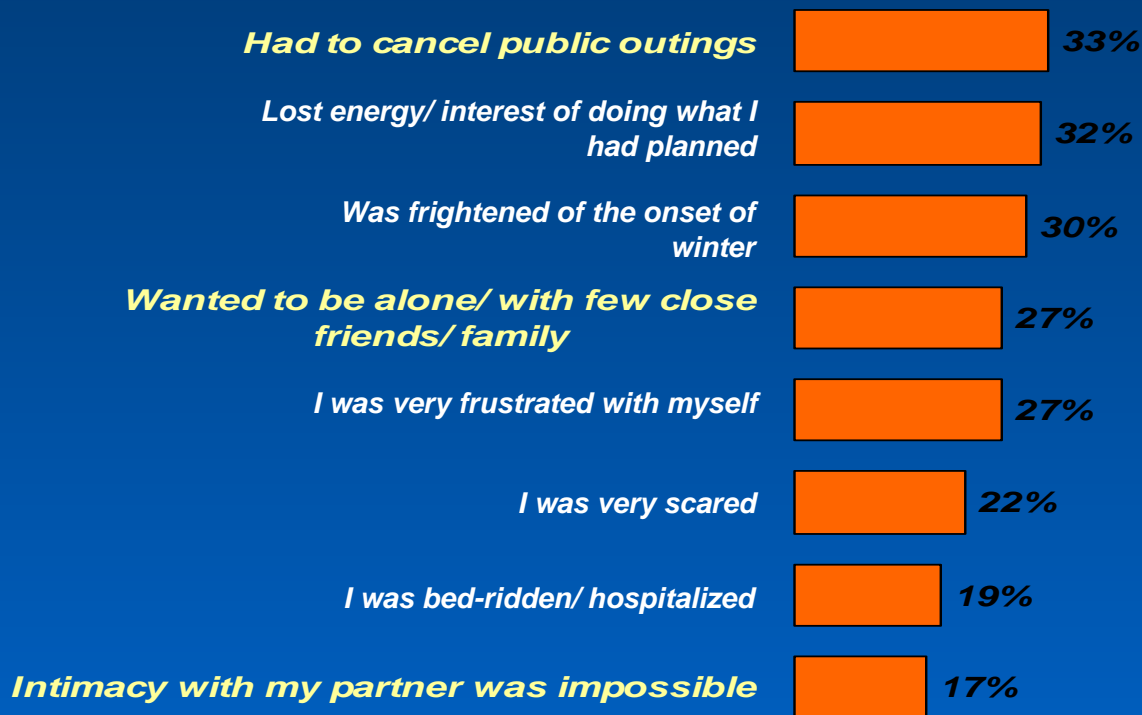
$r = -0.23$
 $p < 0.0001$

Declino funzionale vs evoluzione clinica nella BPCO



Sutherland et al, NEJM 2004

Come il paziente percepisce la BPCO: lo studio PERCEIVE



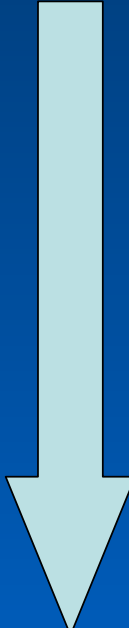
1,100 interviews in
5 EU countries and
USA

Dal VEMS alla dispnea

- “Senza fiato”
- Maggior sforzo per respirare
- “Fame d’aria”
- “Pesantezza”
- Disagio a respirare
- “Affanno”
- Consapevolezza del respiro

Simon PM. 1990

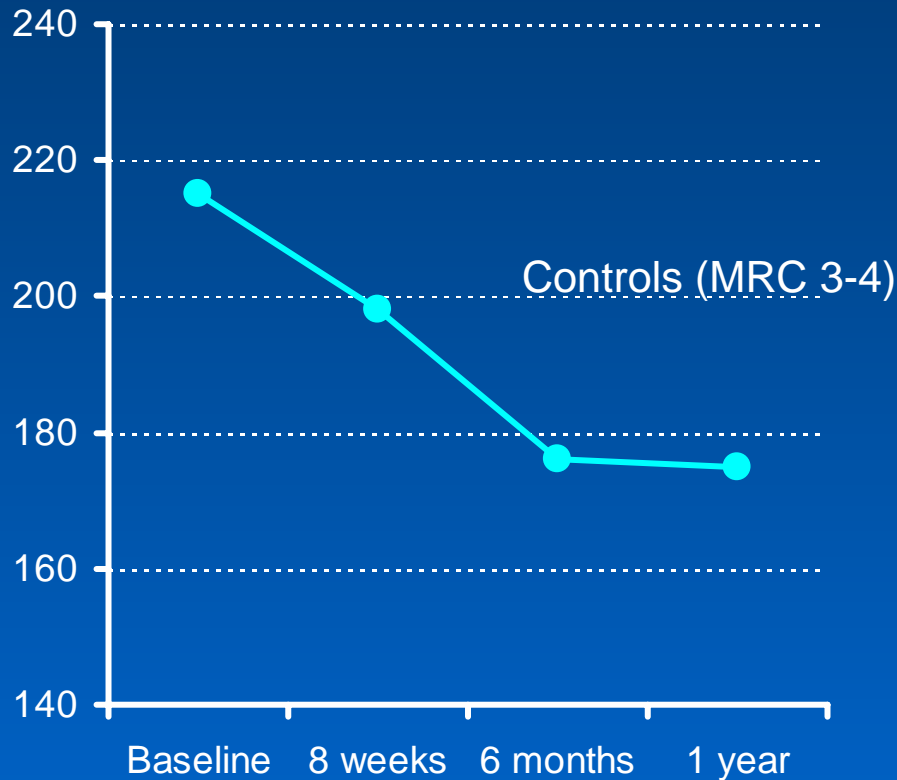
Scala di dispnea del Medical Research Council



Grado	Classificazione della dispnea riferito alle attività
1	Non colpito da dispnea eccetto che durante esercizio estremo
2	Fiato corto quando ci si affretta o si cammina in salita
3	Passeggio più lento rispetto ai presenti in piano a causa di dispnea o costretto a fermarsi per dispnea quando cammina al loro ritmo
4	Ci si ferma per dispnea dopo aver camminato in pianura, approssimativamente 100 m o dopo alcuni minuti
5	Dispnea a riposo tale da non consentire di lasciare la casa, o senza fiato quando ci si veste o spoglia.

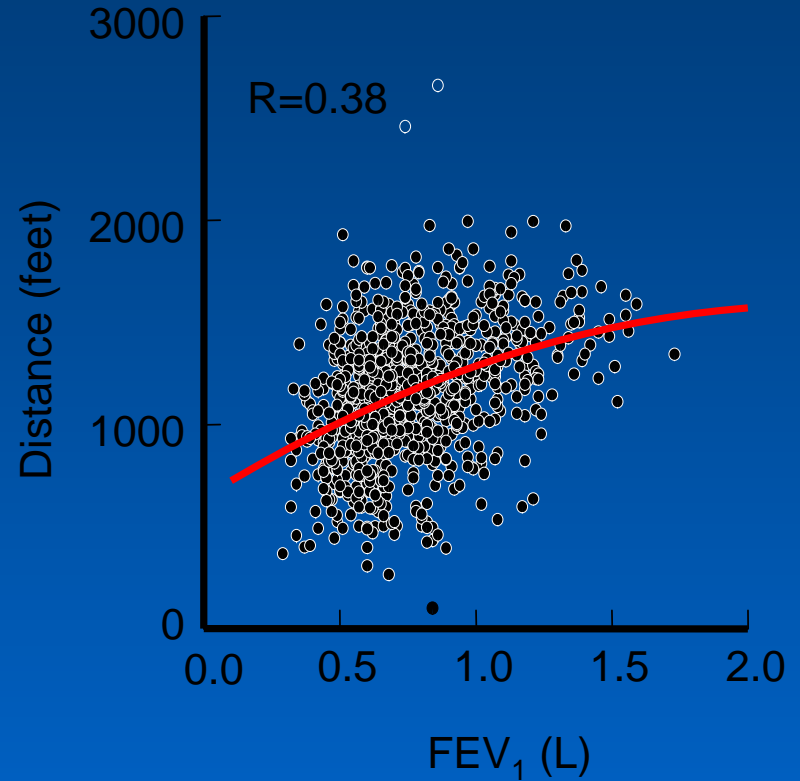
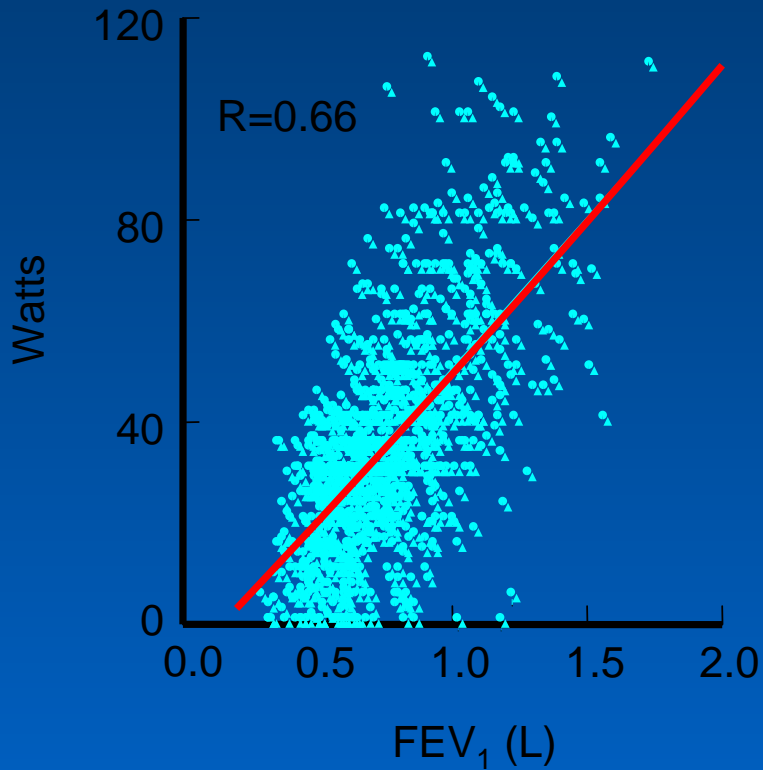
Adattato da Fletcher CM, Elmes PC, Fairbairn MB et al. (1959) The significance of respiratory symptoms and the diagnosis of chronic bronchitis in a working population. *British Medical Journal* 2:257-66.

Dalla dispnea alla capacità d'esercizio

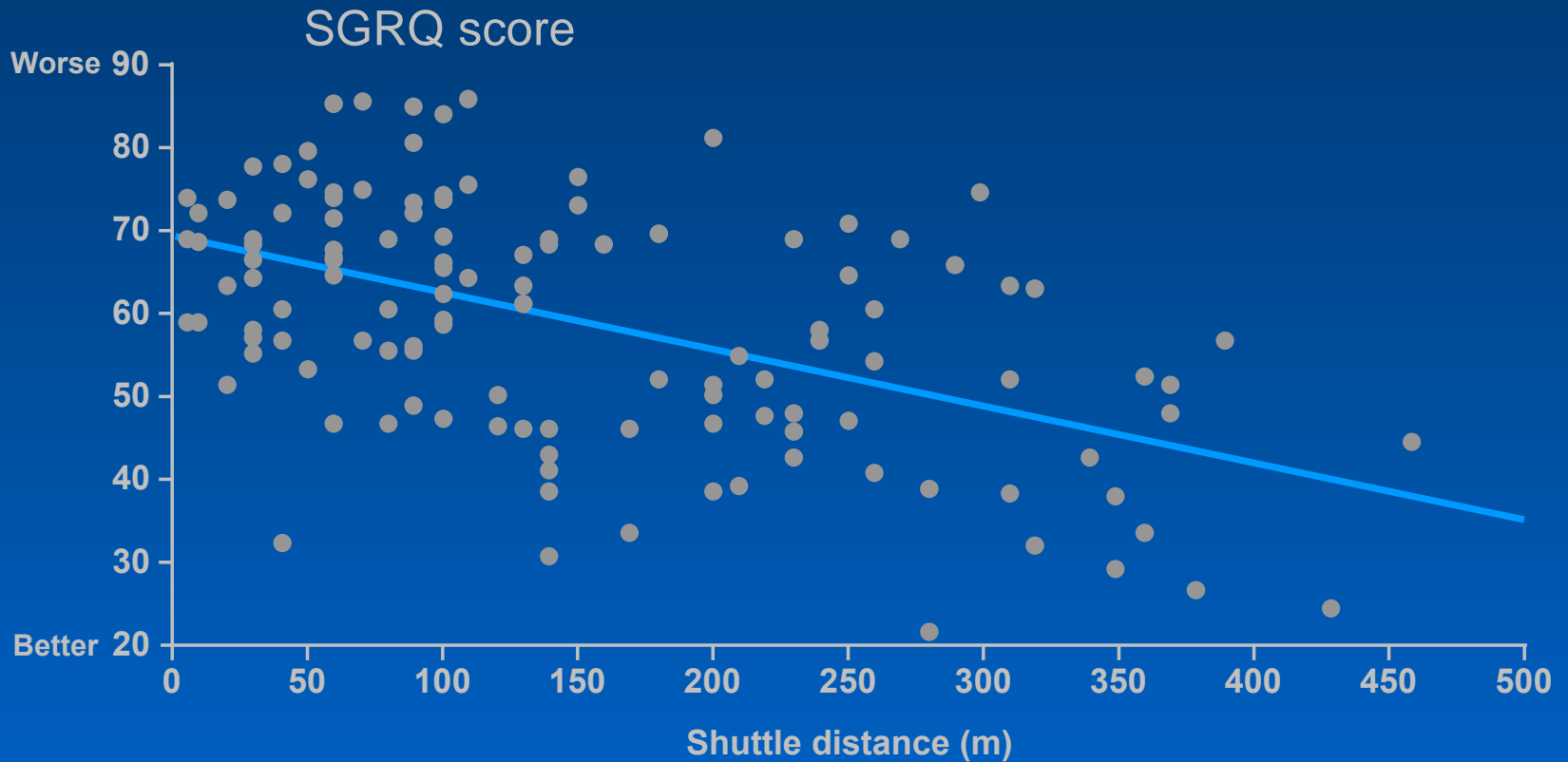


Trend longitudinale
della capacità
d'esercizio nei
controlli di un trial
sulla riabilitazione
nella BPCO

Il FEV₁ correla scarsamente con la capacità d'esercizio



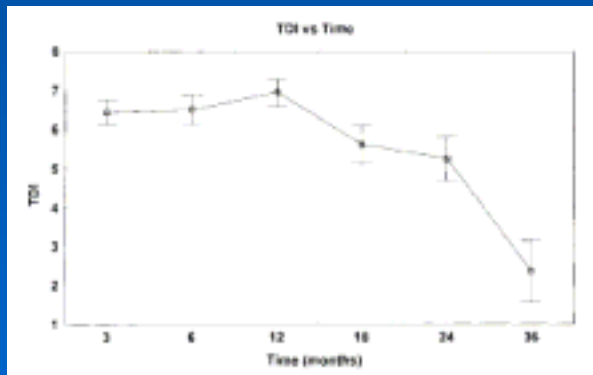
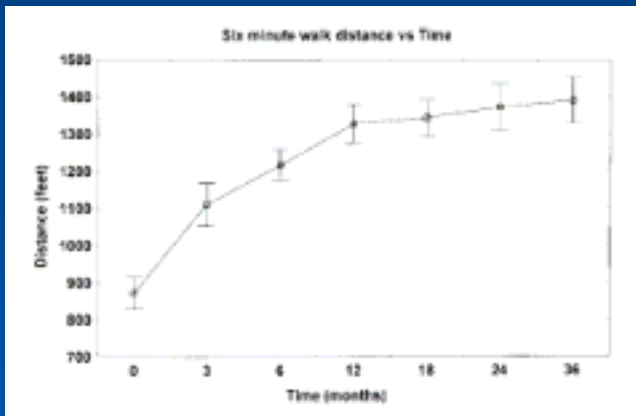
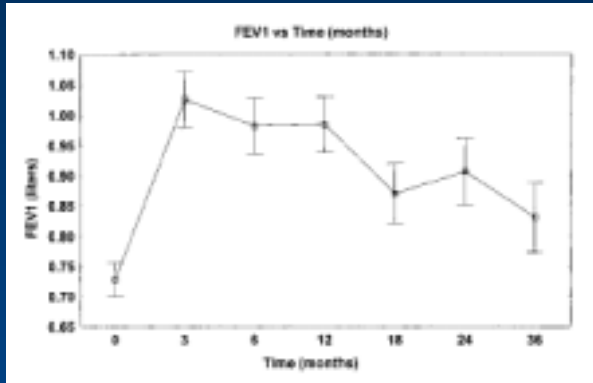
Capacità d'esercizio e qualità di vita



$r = -0.51$

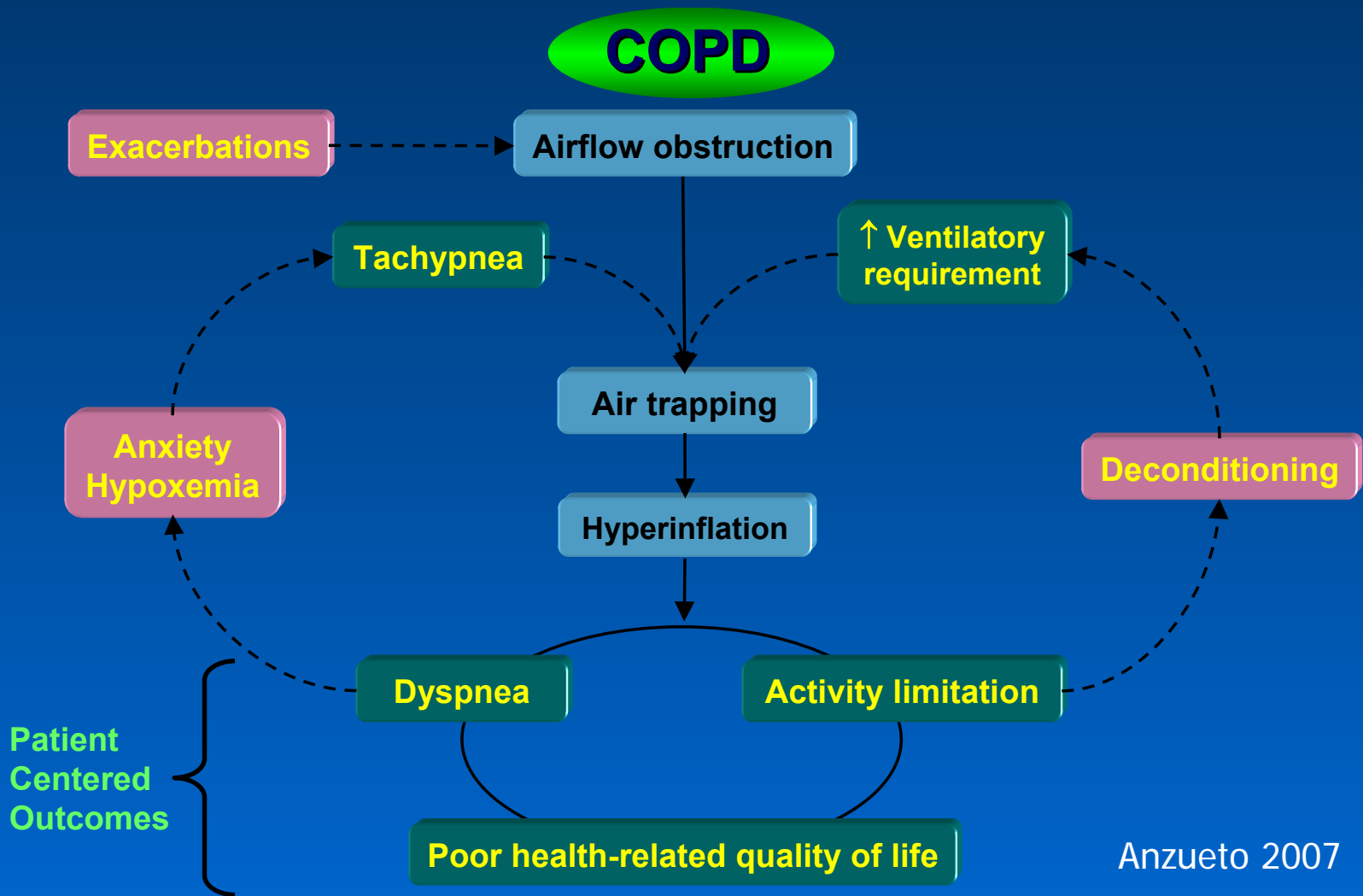
Wedzicha et al. ERJ 1998

Dissociazione tra VEMS e tolleranza all'esercizio dopo LVRS

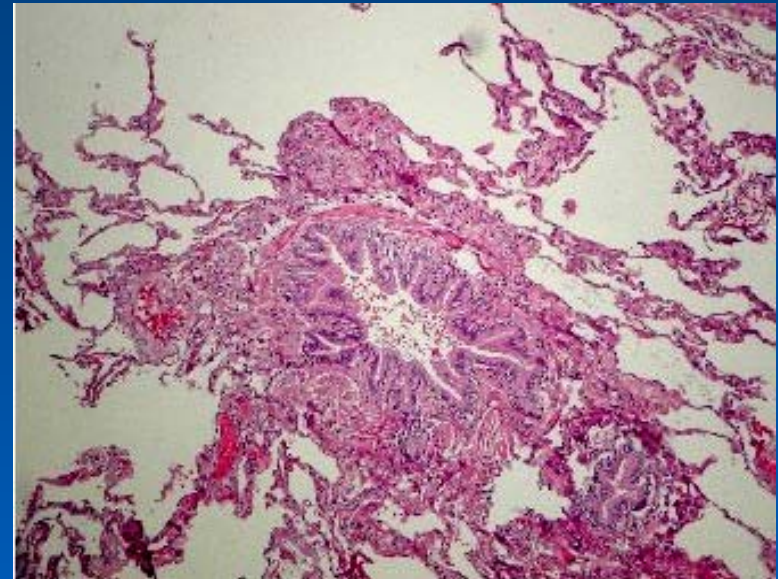
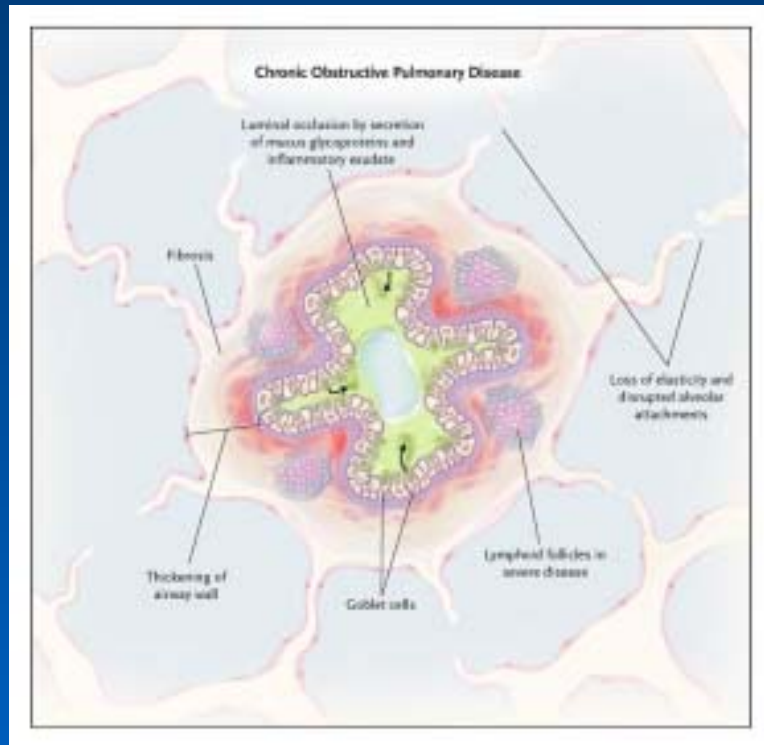


Flaherty et al, 2001

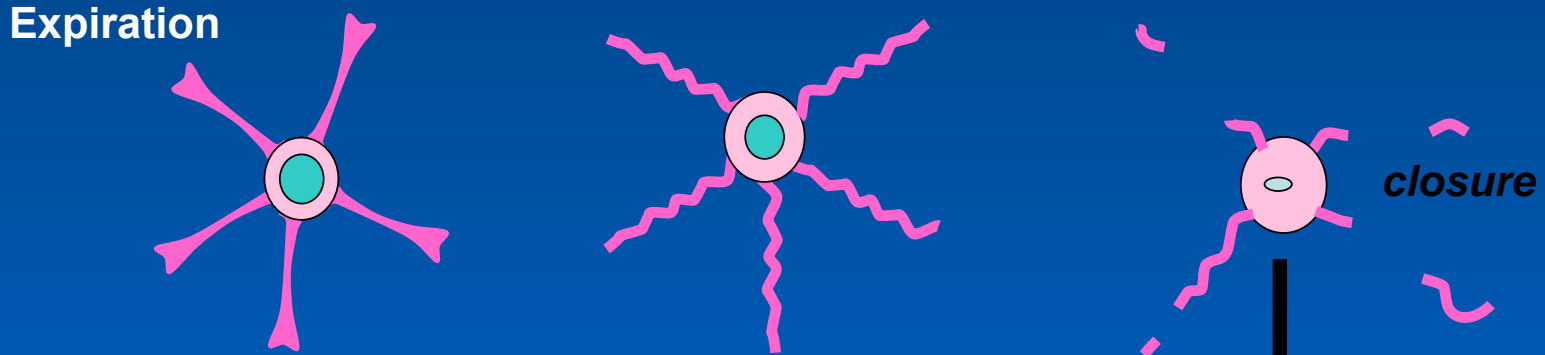
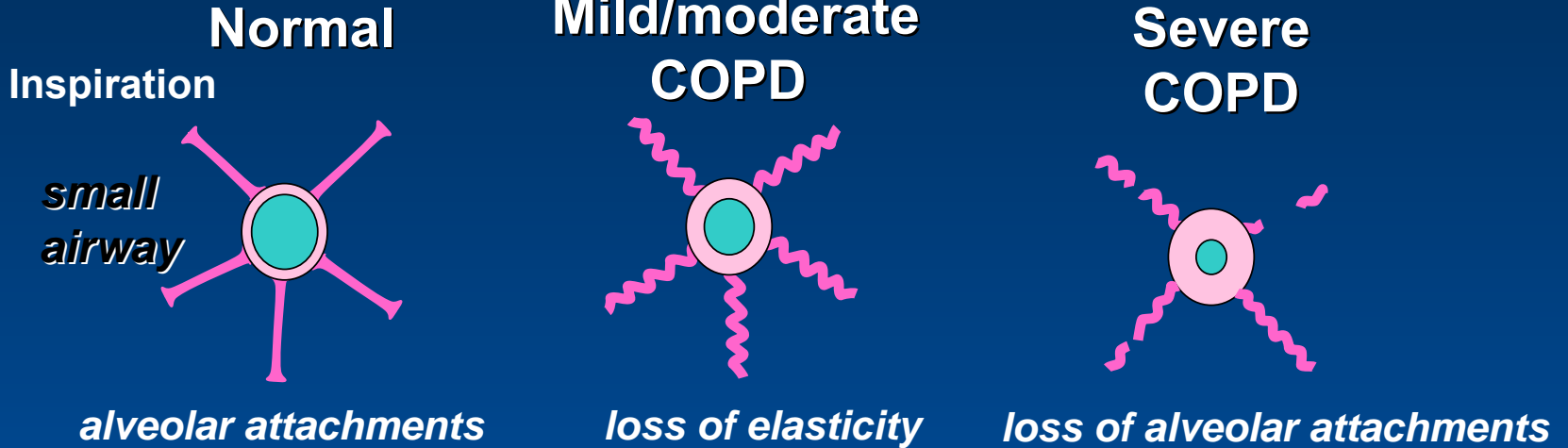
Fisiopatologia della BPCO



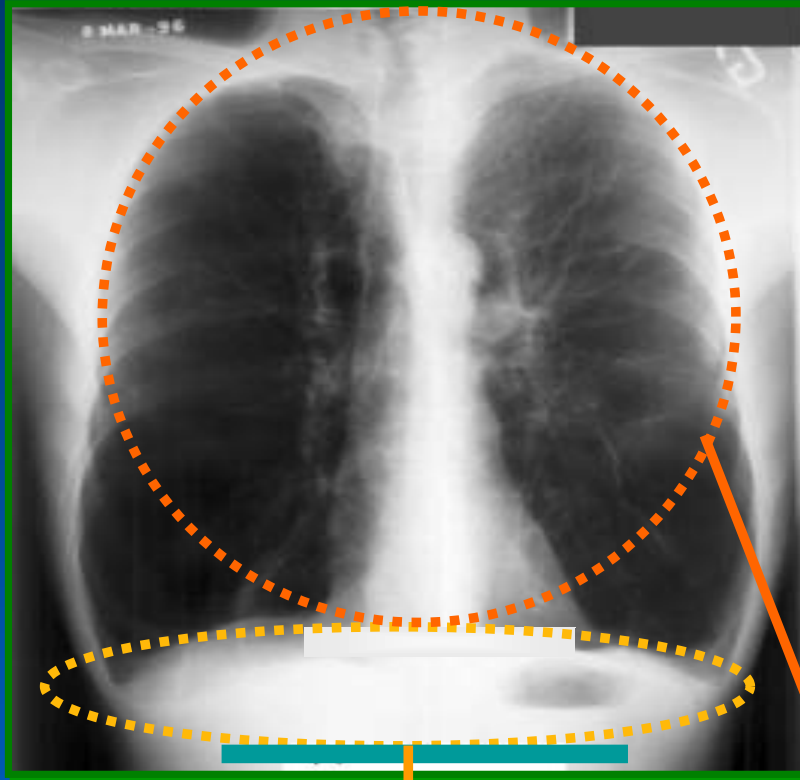
Le piccole vie aeree nella BPCO



Air Trapping nella BPCO

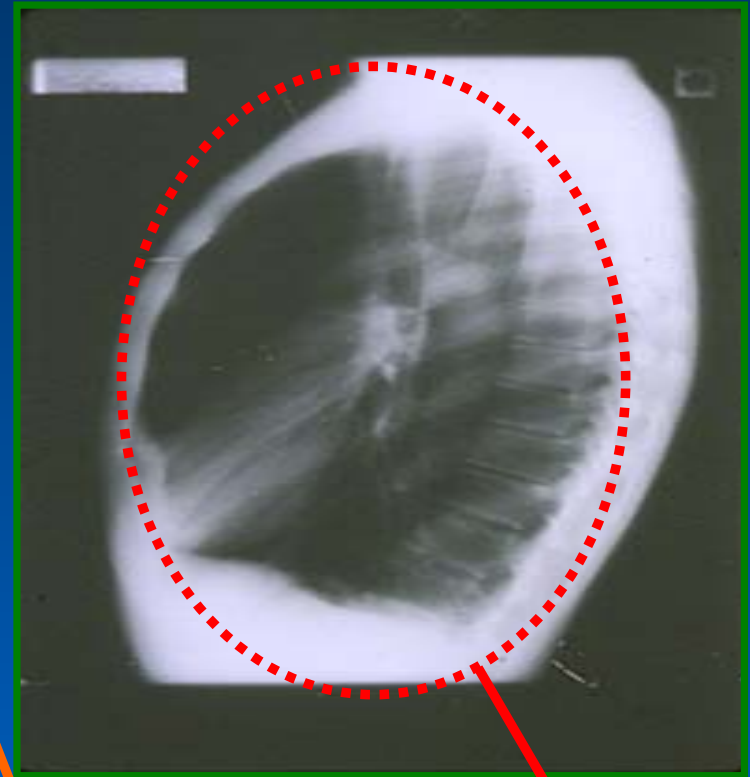


Air trapping nella BPCO



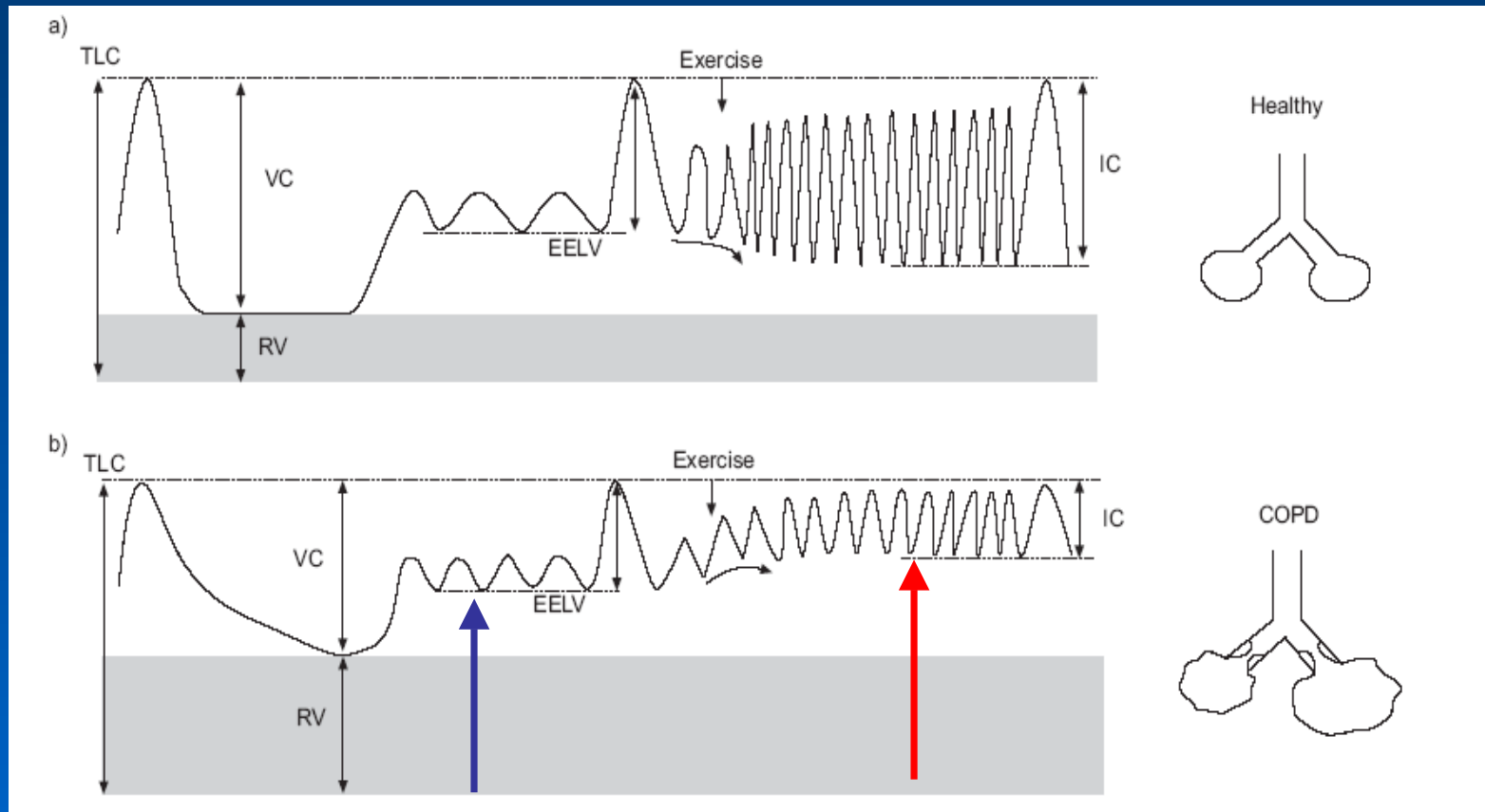
Low, Flattened Diaphragm

Air Trapping

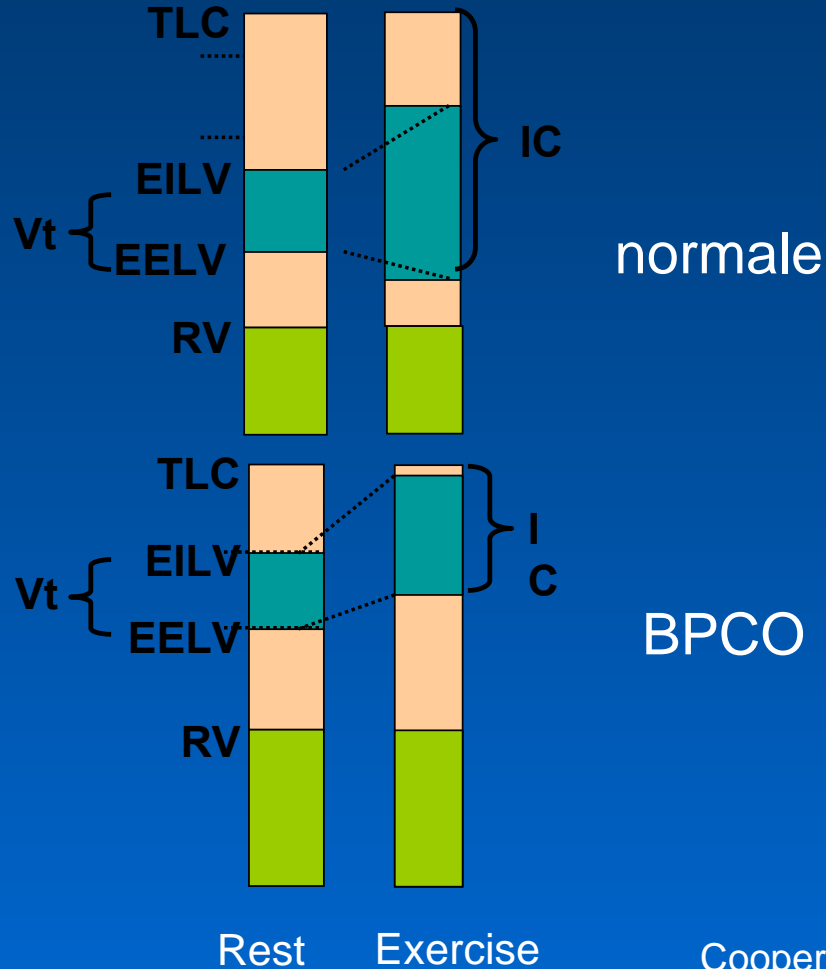


Increased A-P Diameter

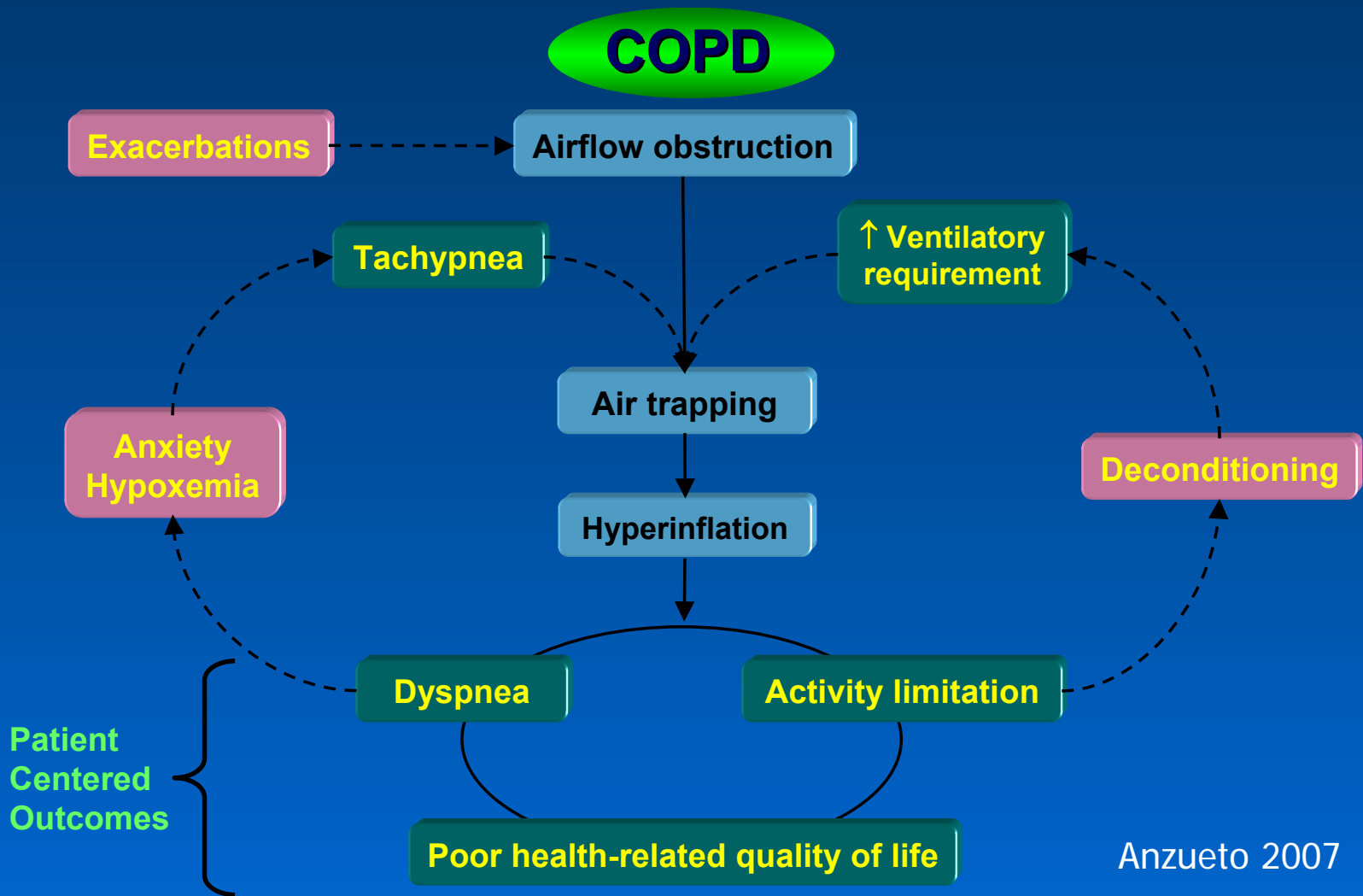
Modificazioni dei volumi polmonari con l'esercizio negli individui normali e nella BPCO (dynamic hyperinflation)



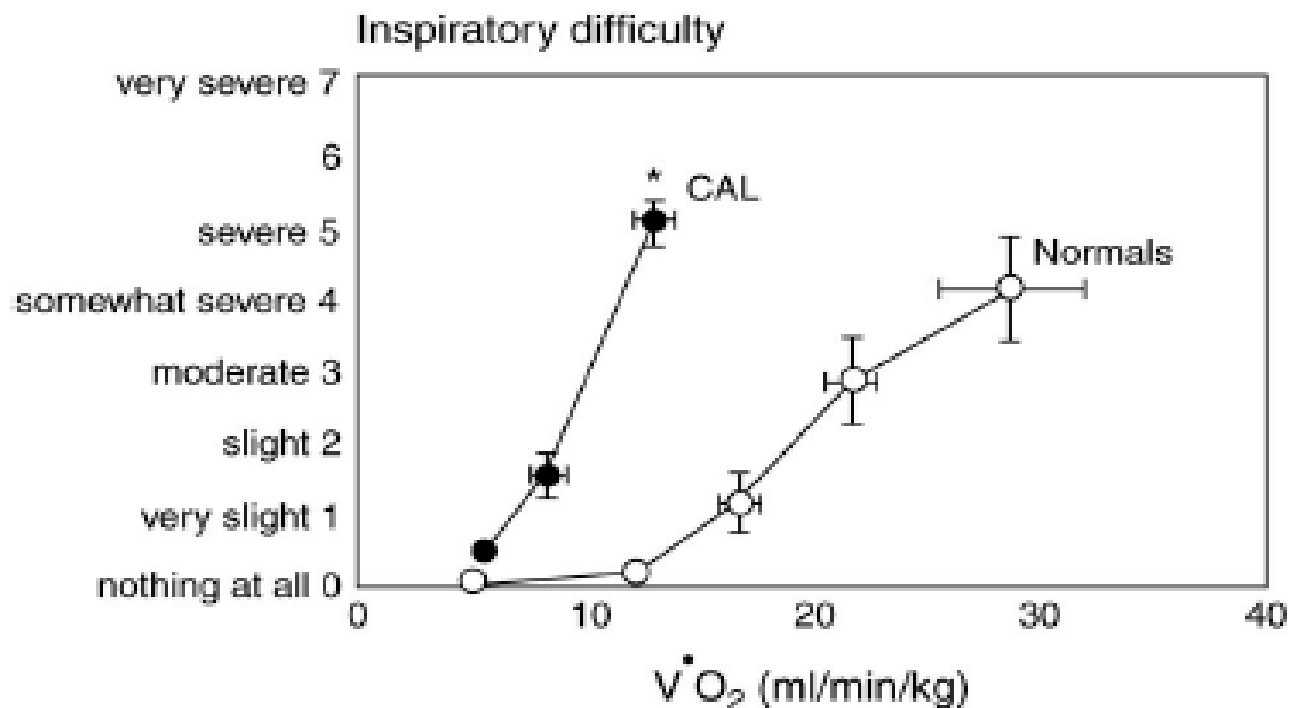
Adattamento dei volumi polmonari all'esercizio



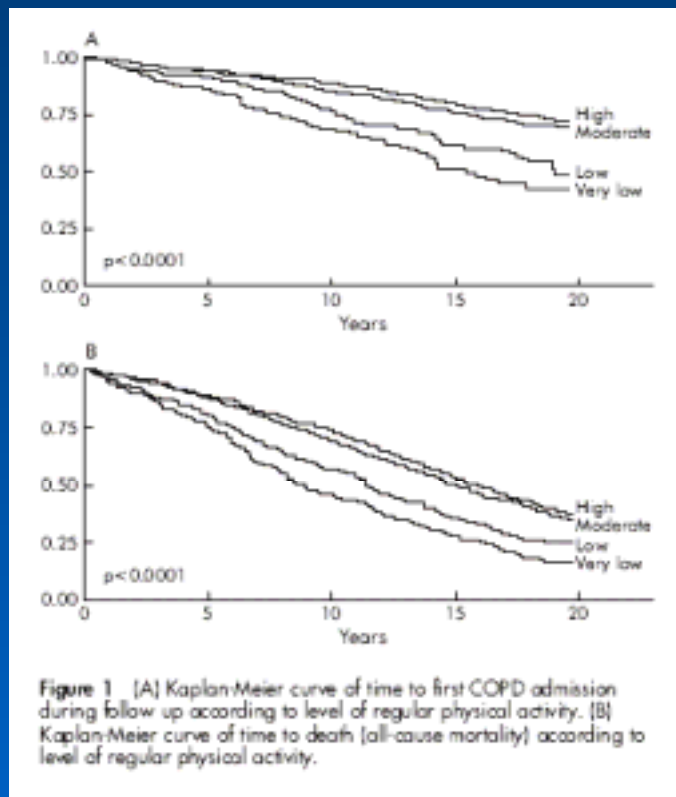
Fisiopatologia della BPCO



Intensità della dispnea (Borg) e $\dot{V}O_2$ durante un test ergometrico incrementale in BPCO e soggetti normali



Attività fisica regolare e prognosi nel CCHS



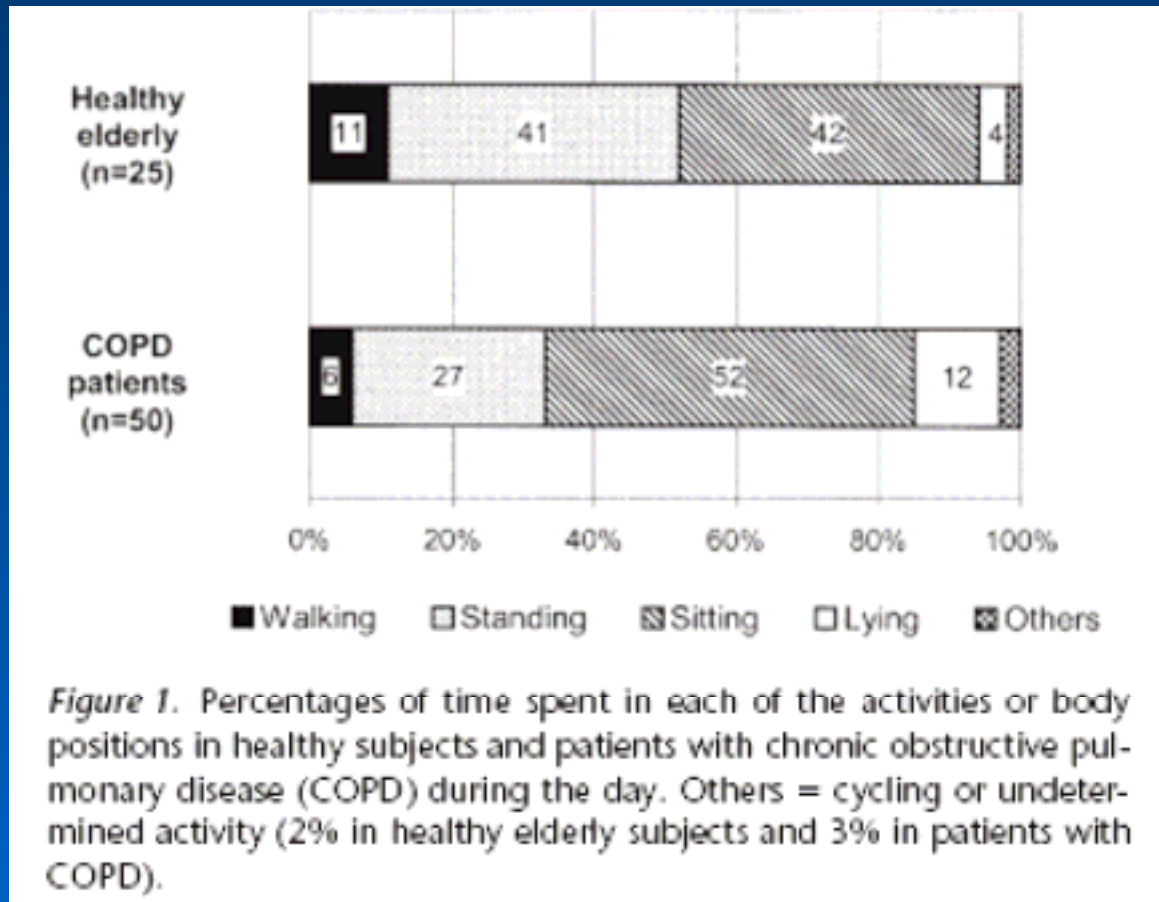
Sistema multisensore Armband Sensewear



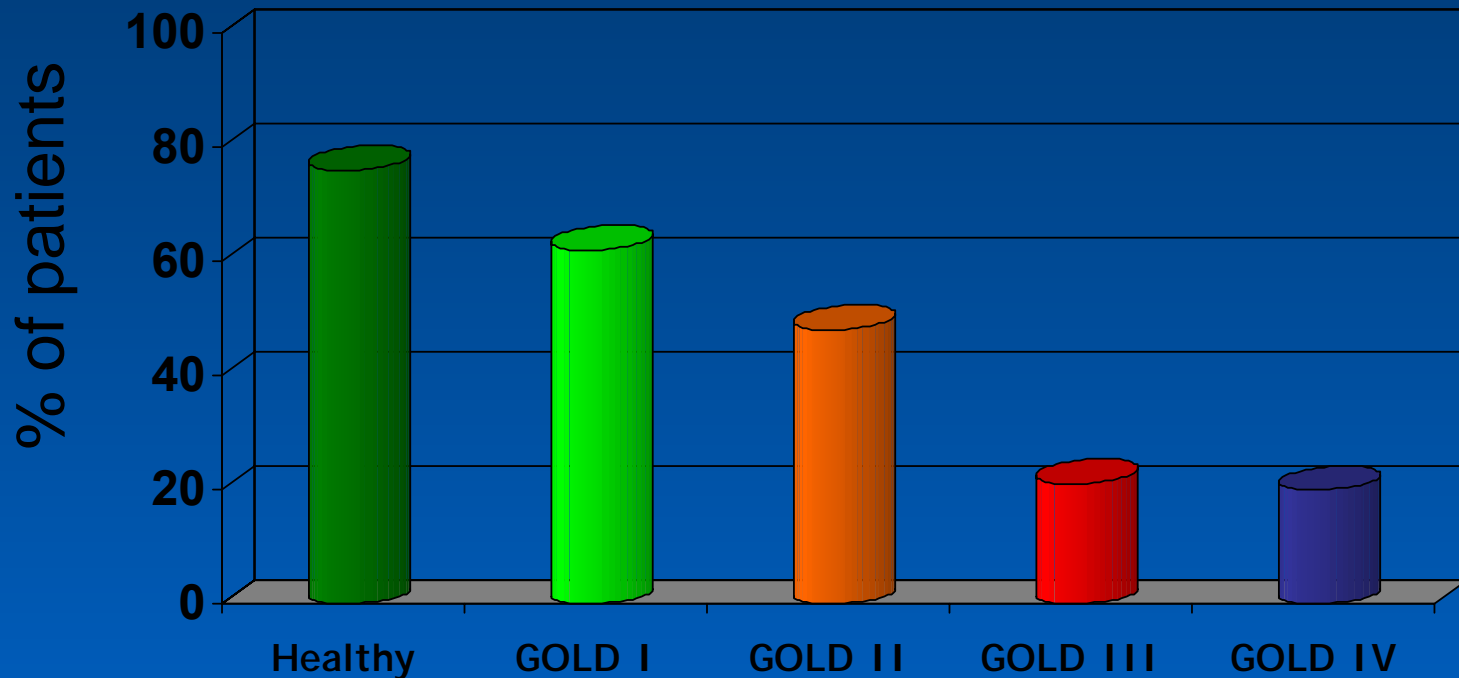
sensors

- 2 accelerometers
 - Skin temperature
 - Near body temperature
 - Galvanic skin resistance
-
- Estimation of energy expenditure based on specific algorithms
 - Duration (minutes) and intensity (METs) of the activities

Componenti dell'attività fisica della vita quotidiana nella BPCO

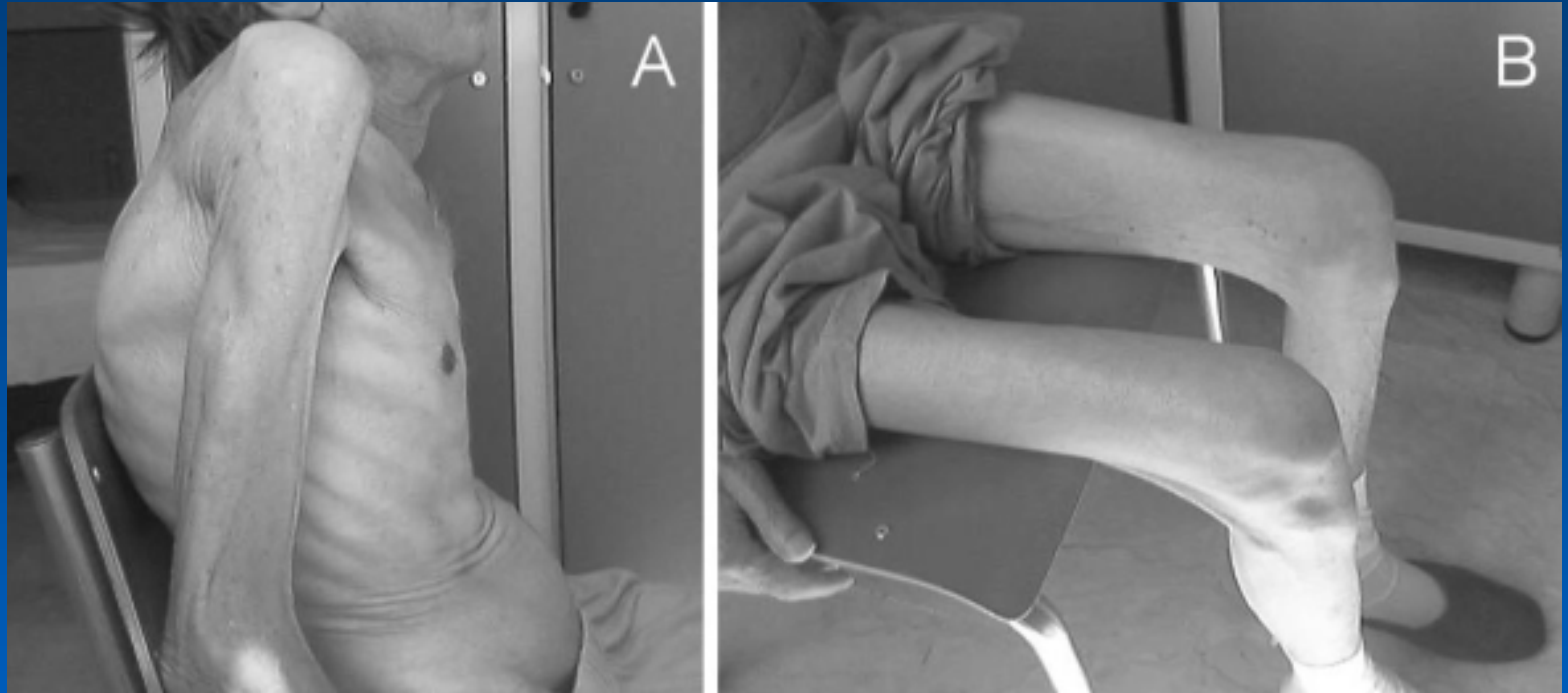


Pazienti che si conformano alle LG: >30'; ≥ 3 METs; ≥ 5 giorni

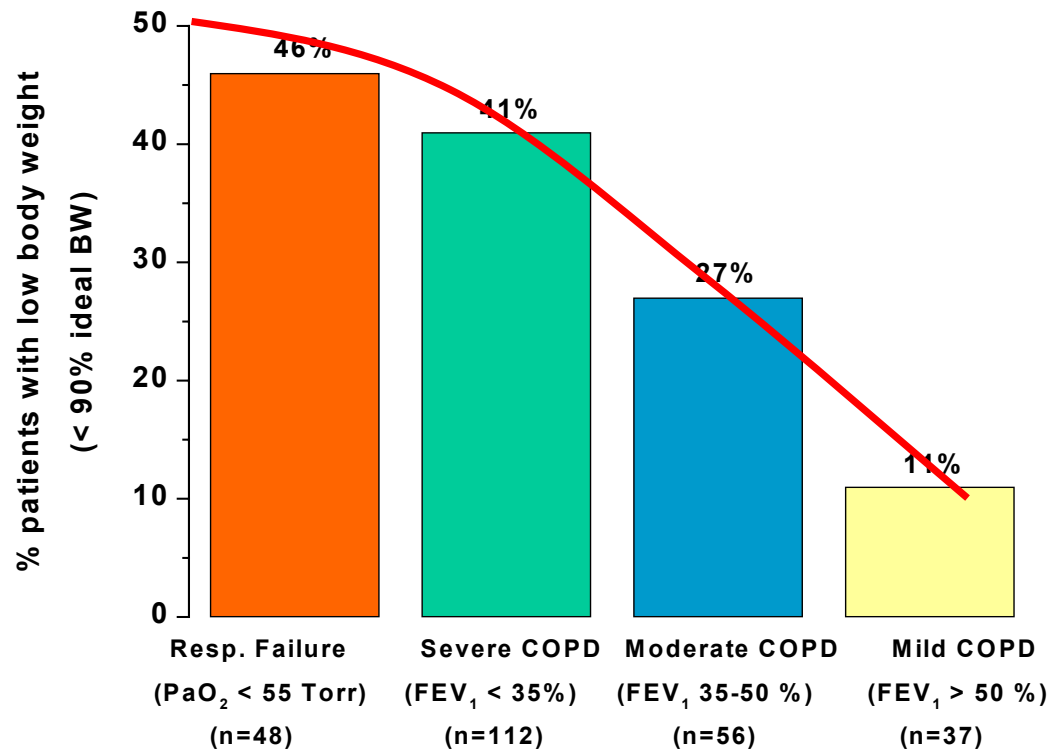


Battaglia et al 2007

“Cachessia polmonare”



Prevalenza della deplezione nutrizionale nei pazienti con BPCO



Il circolo vizioso della BPCO

Local Effects

Obstruction,
Hyperinflation, ecc..

Dyspnea

Limitation of
physical activity

DISABILITY

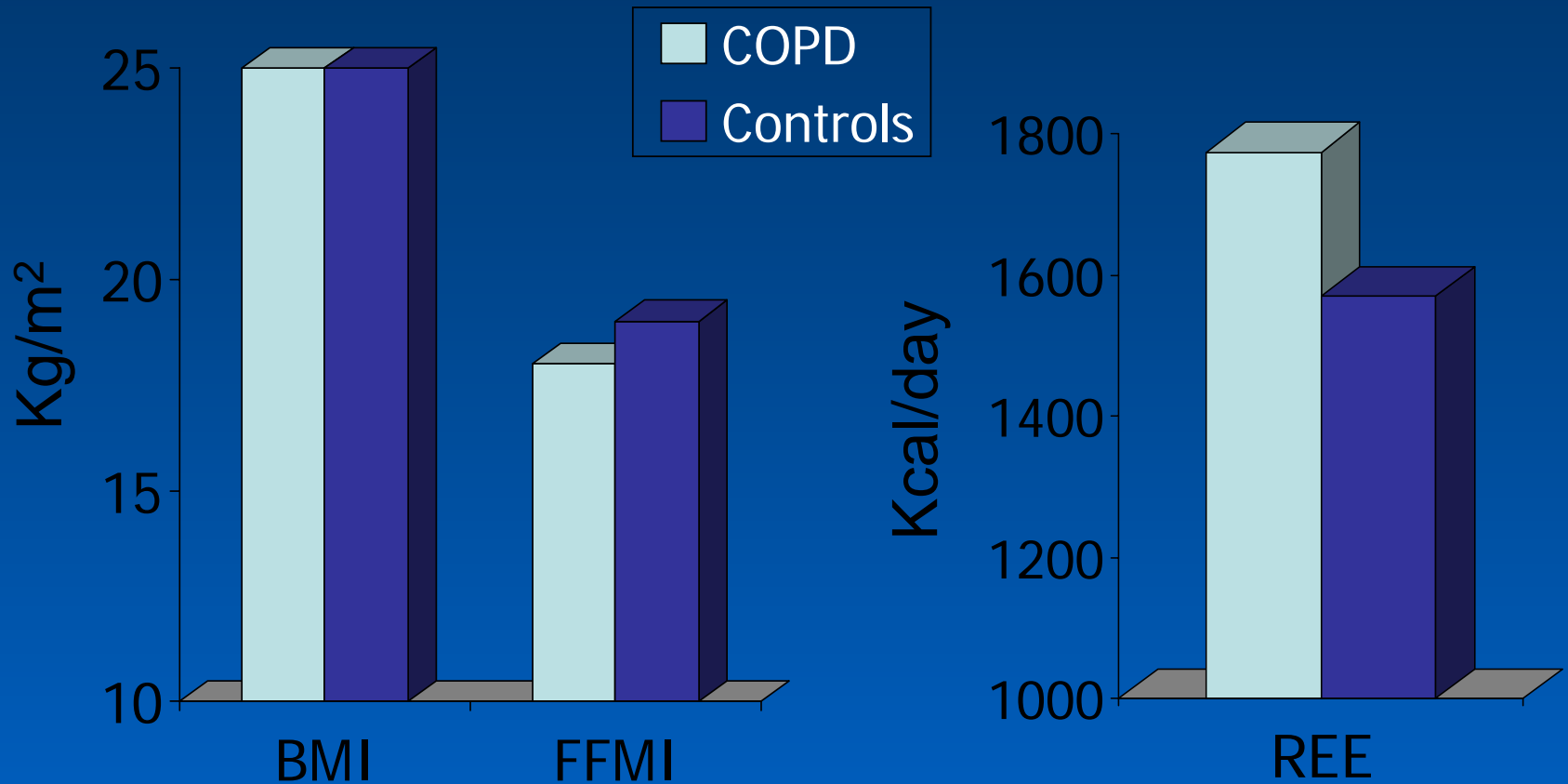
Muscular
deconditioning

Systemic Effects

Dysfunction of
skeletal muscles

Sedentary life

Alterazioni della composizione corporea e REE in anziani con BPCO



Upregulation di citochine proinfiammatorie nei mm intercostali nella BPCO

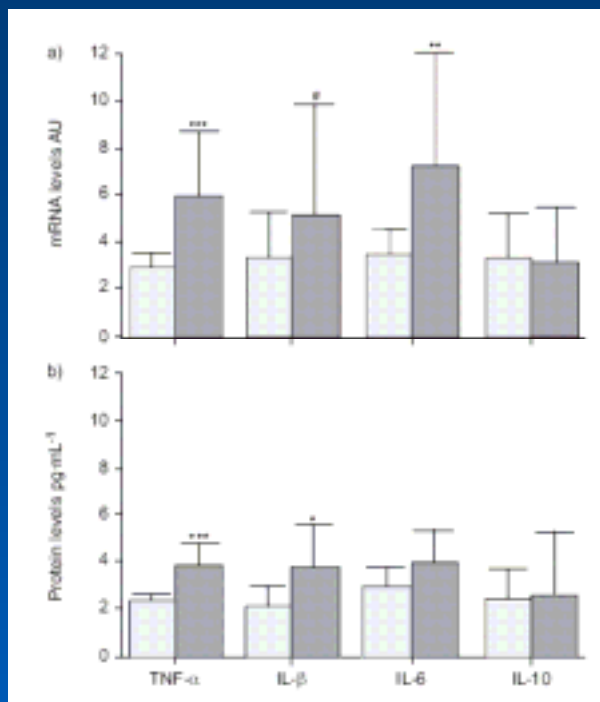


FIGURE 1. a) Relative cytokine mRNA levels and b) protein levels of the corresponding cytokines in external intercostal muscles of chronic obstructive pulmonary disease (COPD) patients (■) and control subjects (□). Error bars represent so. AU: arbitrary units; TNF: tumour necrosis factor; IL: interleukin. #: p=0.05; †: p<0.05; **: p<0.01; ***: p<0.001.

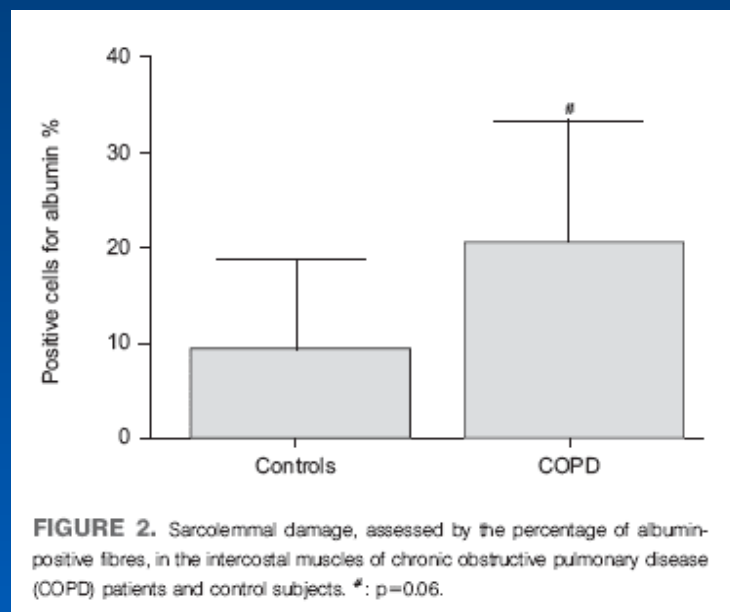
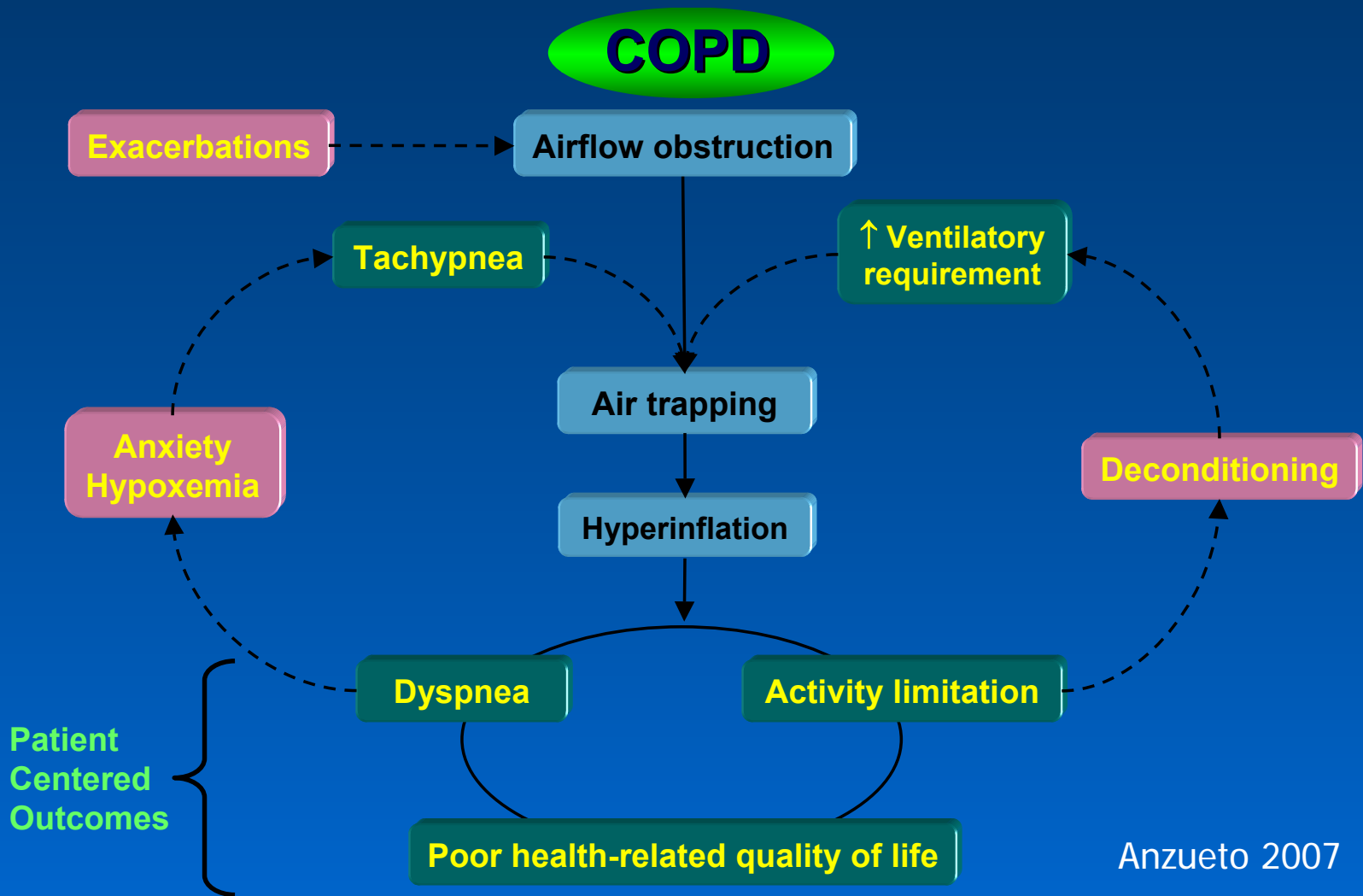
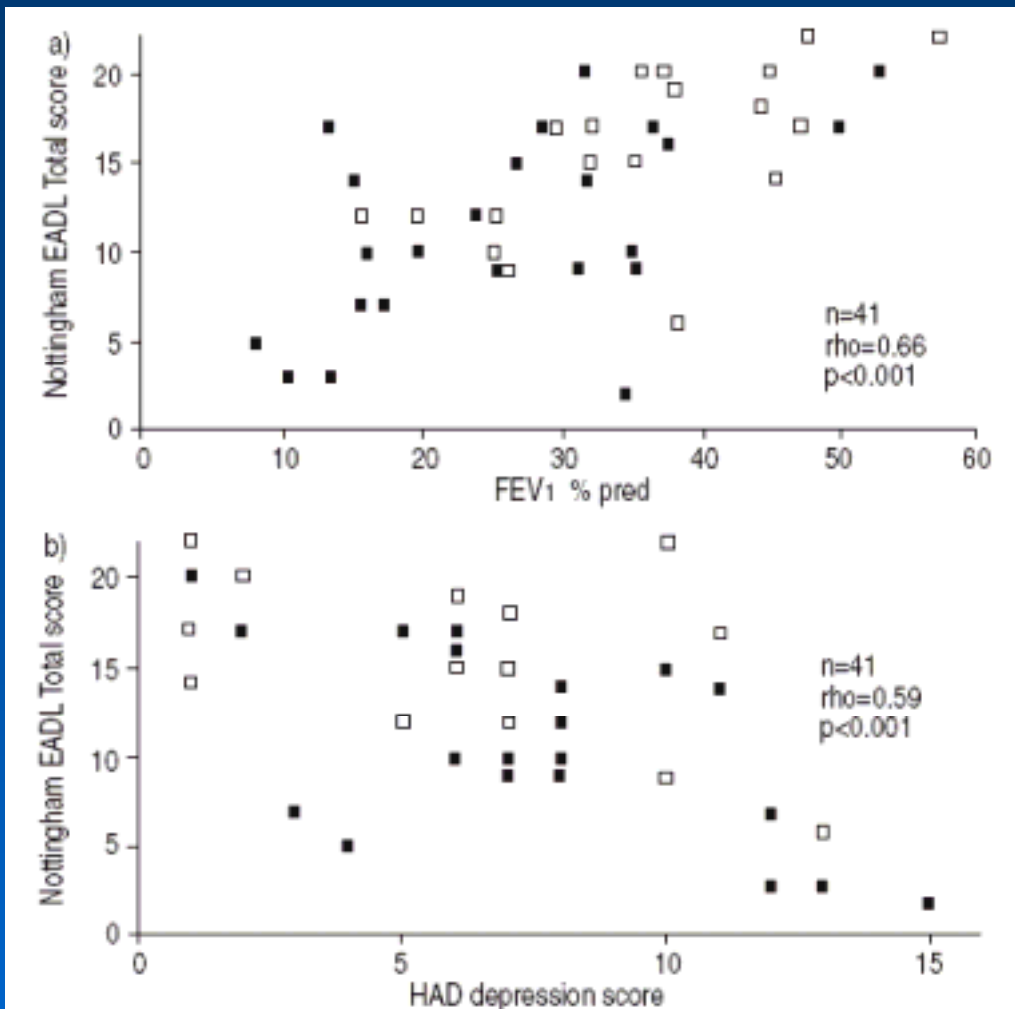


FIGURE 2. Sarcolemmal damage, assessed by the percentage of albumin-positive fibres, in the intercostal muscles of chronic obstructive pulmonary disease (COPD) patients and control subjects. #: p=0.06.

Fisiopatologia della BPCO

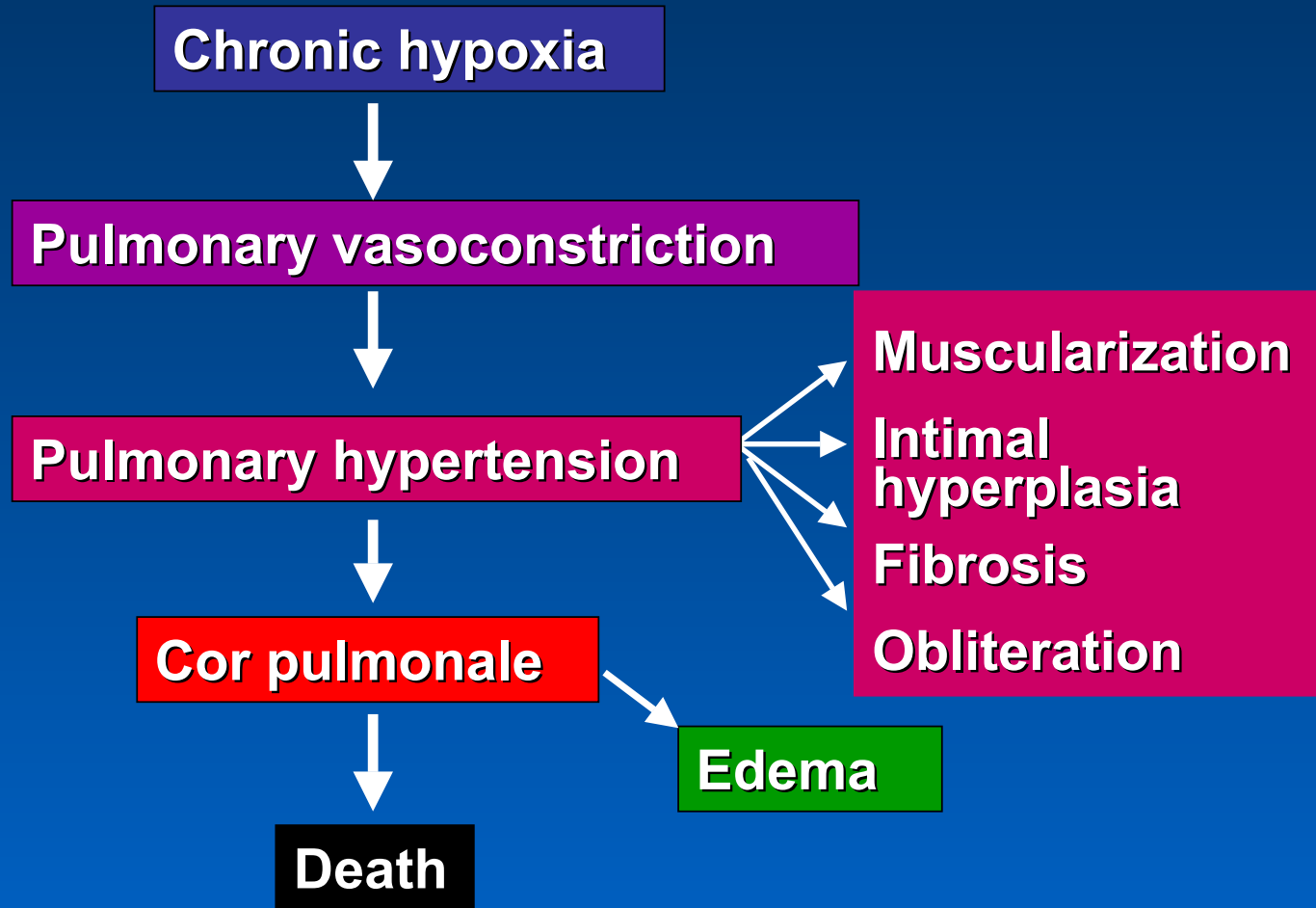


Depressione e EADL in pazienti con BPCO grave in LTOT

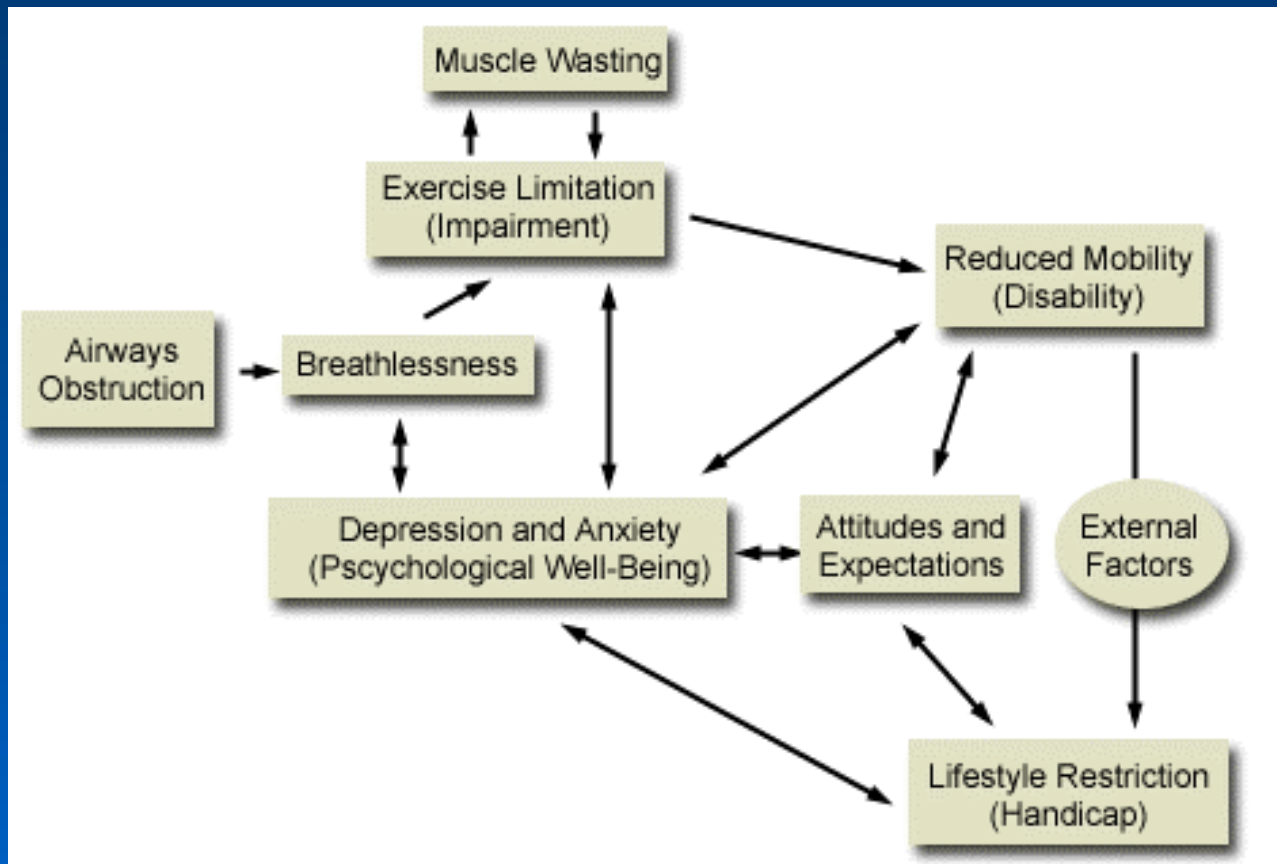


Okuibadejo et al 1996

Ipertensione polmonare nella BPCO



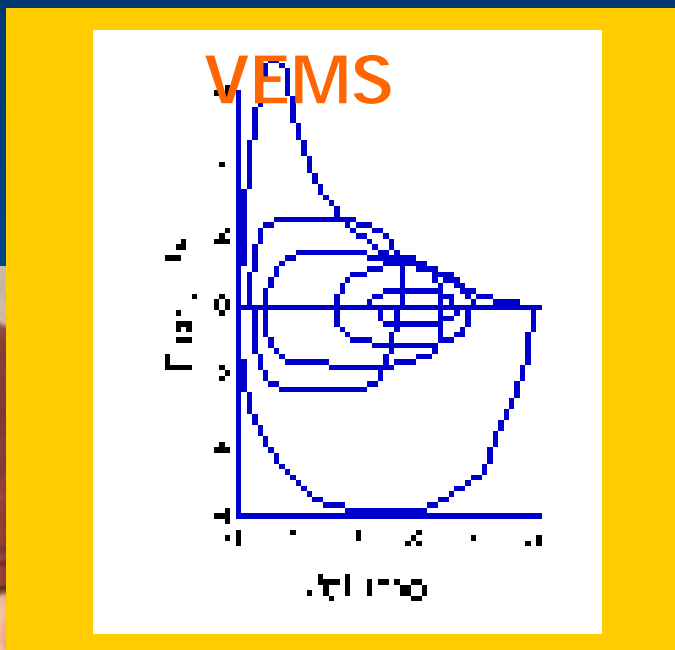
Fisiopatologia della BPCO: oltre l'ostruzione ed il VEMS



Fisiopatologia: oltre l'ostruzione ed il VEMS



Disabilità



Handicap